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# ENVIRONMENTAL ASSESSMENT

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LOCK AND DAM 13 MAJOR REHABILITATION

WHITESIDE COUNTY, ILLINOIS

CLINTON COUNTY, IOWA

JANUARY 1993

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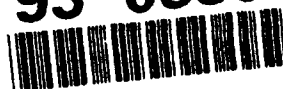
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US Army Corps  
of Engineers  
Rock Island District

93-08839



UNCLASSIFIED STATEMENT

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REPLY TO  
ATTENTION OF:

DEPARTMENT OF THE ARMY  
ROCK ISLAND DISTRICT, CORPS OF ENGINEERS  
CLOCK TOWER BUILDING - P.O. BOX 2004  
ROCK ISLAND, ILLINOIS 61204-2004

February 19, 1993

Planning Division

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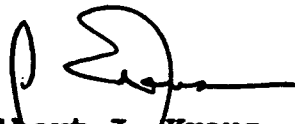
The Rock Island District of the U.S. Army Corps of Engineers has enclosed for your review a copy of the Environmental Assessment (EA), including a Clean Water Act Section 404(b)(1) Evaluation, and a draft Finding of No Significant Impact (FONSI), addressing the proposed major rehabilitation of Lock and Dam 13, Clinton County, Iowa, and Whiteside County, Illinois.

The EA is being circulated for a 30-day public review period, commencing from the date of this letter. If, at the end of the 30 days, no comments are received that alter the determination that no significant environmental impact will result, the FONSI will be signed and kept on file at the Rock Island District office.

Please send any comments to the address listed below:

District Engineer  
U.S. Army Engineer District, Rock Island  
ATTN: Planning Division  
Clock Tower Building  
P.O. Box 2004  
Rock Island, Illinois 61204-2004

Sincerely,



Albert J. Kraus  
Colonel, U.S. Army  
District Engineer

Enclosure



REPLY TO  
ATTENTION OF

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DEPARTMENT OF THE ARMY  
ROCK ISLAND DISTRICT, CORPS OF ENGINEERS  
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ENVIRONMENTAL ASSESSMENT

LOCK AND DAM 13 MAJOR REHABILITATION

WHITESIDE COUNTY, ILLINOIS  
CLINTON COUNTY, IOWA

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JANUARY 1993

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## ENVIRONMENTAL ASSESSMENT

### LOCK AND DAM 13 MAJOR REHABILITATION

WHITESIDE COUNTY, ILLINOIS  
CLINTON COUNTY, IOWA

**BACKGROUND.** Lock and Dam 13 is a component of the inland waterway navigation system of the Upper Mississippi River Basin. Construction, operation, and maintenance of this facility was authorized by the River and Harbor Act of 1930. Construction of Lock and Dam 13 was completed in 1939.

An Environmental Impact Statement was prepared for *Operation and Maintenance of the Upper Mississippi River Nine-Foot Channel Project, Pools 11 Through 22*, with the Statement of Findings filed with the Council on Environmental Quality on January 28, 1975.

The U.S. Army Corps of Engineers, North Central and Lower Mississippi Valley Divisions; St. Paul, Rock Island, and St. Louis Districts are currently engaged in planning and construction activities on the Upper Mississippi and Illinois Rivers for the purpose of repairing and updating components of the navigation system on these rivers. Various site-specific environmental documents have been, or are being, prepared which discuss localized effects to natural and cultural resources from rehabilitation of Locks and Dams 2 through 22 on the Upper Mississippi River; and Lockport, Brandon Road, Dresden Island, Marseilles, Peoria, and La Grange Locks and Dams on the Illinois River. A Programmatic Environmental Impact Statement (PEIS) was prepared to assess the environmental impacts to the Upper Mississippi River System (UMRS) from the major maintenance/rehabilitation effort. The majority of the maintenance/rehabilitation work has consisted of repair and replacement items.

The Rock Island District conducted a traffic analysis in the PEIS to ascertain whether operation of the proposed rehabilitation measures to existing features would be likely to increase commercial navigation, which would lead to system-wide (cumulative) impacts on the UMRS. The traffic analysis concluded that during the navigation season and by the year 2040, a 1.3 percent increase in system traffic, or about 2.1 million tons, would occur with the proposed measures in place, versus without the proposed measures. This traffic increase translates into an average increase of about one tow per week on the Illinois Waterway and about two tows per week on the Mississippi River. It would be difficult to measure this small increment in traffic from an environmental impact viewpoint. Also, this small increase in traffic is within the normal variability of any navigation season.

The proposed maintenance/rehabilitation of Lock and Dam 13 covered by this Environmental Assessment includes maintenance and construction work

to existing lock and dam features, such as concrete removal and replacement and electrical/mechanical equipment replacement. As a result, the rehabilitated facilities will retain operating and performance characteristics similar to their original design. The only activity for this project that can be considered new construction is the bubbler system. Louis Berger & Associates in their report for the St. Paul District entitled *Assessment of Cumulative Impacts of Major Rehabilitation of Locks and Dams 2 Through 10* (1987) state "It is important to emphasize that the new bubbler system has no influence on the length of the navigation season. The beginning and end of the navigation season are determined by the river conditions and not by the lock availability." (Emphasis added.) At such time as any new construction features are proposed for Lock and Dam 13, they will be evaluated as to their impact on local and system traffic and any resulting cumulative environmental impacts. The District concluded that completion of this Lock and Dam 13 Major Rehabilitation Project would not result in system-wide or cumulative impacts to the UMRS that are measurable over existing conditions. The Final PEIS was distributed for public review in March 1989, and the Record of Decision was signed on July 28, 1989.

**ENVIRONMENTAL ASSESSMENT**  
**LOCK AND DAM 13 MAJOR REHABILITATION**  
**WHITESIDE COUNTY, ILLINOIS**  
**CLINTON COUNTY, IOWA**

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**ENVIRONMENTAL ASSESSMENT**  
**LOCK AND DAM 13 MAJOR REHABILITATION**  
**WHITESIDE COUNTY, ILLINOIS**  
**CLINTON COUNTY, IOWA**

**I. PURPOSE AND NEED FOR ACTION.**

Completed in 1939, Lock and Dam 13 has surpassed the 50-year lifespan typically estimated for concrete structures of this type. Maintenance of the facilities is needed to retain operating and performance characteristics similar to their original design.

**II. PROJECT DESCRIPTION.**

Lock and Dam 13 is located at Mississippi River mile 522.5, just north of Fulton, Illinois. The location of the facility is shown on Plate EA-1 - Project Location.

The facilities are described as follows:

- \* The lock chamber is 110 feet wide by 600 feet long, with a maximum lift of 11.0 feet. An adjacent partially constructed emergency lock is 110 feet wide by 360 feet long.

- \* The dam has a total length of 14,456 feet, consisting of a gross length of 1,066 feet of movable or gated sections, 11,360 feet of non-overflow earth dike sections, 1,650 feet of overflow earth dam sections, 180 feet of a 10:1 transitional sloped dike, and 200 feet of storage yard. The movable or gated section adjoins Lock 13 and is located across the main channel. The dam contains 3 roller gates and 10 tainter gates, together with appurtenant piers, sills, aprons, service bridge, operating machinery, and control houses. Four of the tainter gates, located adjacent to the lock, are separated from the remainder of the tainter gates by the 3 roller gates, which are situated at about mid-channel. The initiation of the non-overflow section is formed by a 200-foot-long storage yard adjacent to the west end of the gated dam section. The non-overflow embankment section ties into railroad embankments on both sides of the river.

The proposed activity involves a variety of construction-type work such as concrete removal and replacement, steel work, sandblasting, painting, mechanical equipment replacement, electrical equipment replacement, riprap scour protection, and dredging and silt removal.

Description/details of the proposed rehabilitation plan are as follows:



## **A. Lock Walls, Guidewalls, and Walking Surfaces.**

1. **Present Condition.** The lock needs a substantial amount of maintenance to slow further deterioration and extend the useful life of the structure. The vertical monolith joints in the walls are deteriorated and badly abraded as a result of barges scraping the walls. Concrete near the miter gate anchorages and in many monoliths is badly deteriorated. Protection angles at some ladder recesses and all miter gate recess corners have been stripped off by barges. The horizontal walking surfaces of the lock are spalled and cracked in several locations due to freeze-thaw action. The spalled and cracked concrete is a potential safety hazard due to the uneven surfaces.

2. **Proposed Rehabilitation.** The lock walls will be repaired by removing concrete in the lock chamber and around the miter gates and replacing it with new concrete and armor. Between the miter gates the concrete will be repaired by removing about 770 feet of concrete on each wall 18 inches deep from elevation 592.0 the top of the lock wall to elevation 571.0 and replacing it with new concrete and armor. The poiree dam (downstream) and bulkheads (upstream) will be installed to lower the water level in the lock chamber below elevation 571.0, the level of damaged concrete. A section of the lock walls upstream of the upstream miter gates will be repaired by removing 8 feet of concrete on each wall 18 inches deep from elevation 592.0 to elevation 571.0 and replacing it with new concrete and armor. This section will also be dewatered with the lock dewatering. The lock walls downstream of the downstream miter gates will be repaired by removing 30 feet of concrete on each wall 18 inches deep from elevation 592.0 to elevation 574.0 and replacing it with new concrete and armor. The armor will consist of horizontal runs of steel T-section and horizontal and vertical steel corner protection. The webs of the T-sections will be embedded in the concrete wall to eliminate the exposed corners. The horizontal walking surfaces will be repaired by scarifying the existing concrete surfaces 4 inches deep and resurfacing them with concrete to reduce shrinkage cracking. The proposed rehabilitation work requiring lock dewatering will be accomplished in the winter months to minimize impacts to navigation.

## **B. Main Lock Miter Gates.**

1. **Present Condition.** Two sets of miter gates are at the main lock. The upper gates are 25 feet high, and lower gates are 30 feet high. The gates are riveted steel frame structures covered with steel buckle plate. The downstream sides of all the gate leafs are protected with timber fendering. The gates rotate on the pintles to open and close. When open, the gates fit into a recess in the lock walls. When closed, the gates are sealed with rubber blocks at the quoin ends that are bolted to the lock walls and rubber blocks at the miter ends. The gates were overhauled and painted in 1974. The gates are in good condition above the waterline, but need major repairs to extend their useful life. The gates are leaking at the quoin seals and miter joint. The paint on the metal

surfaces is chipped and peeling in many areas and the metal is starting to corrode. The timber fendering on the gates is broken and deteriorated.

2. Proposed Rehabilitation. The main lock miter gates will be overhauled and painted, rubber fenders will replace existing gate timbers, and the quoin seals will be placed on the gate instead of the lock walls. The pintles will be inspected, and they will be repaired or replaced as necessary.

C. Emergency Lock Miter Gates.

1. Present Condition. The emergency lock miter gates are a single gate set similar to the upper gates of the main lock, but are silted in on the upstream side. These gates were installed during original construction to provide a 6-foot draft structure for passage of emergency repair craft in the event of failure of the main lock or dam. There will be no change in the use of these gates.

2. Proposed Rehabilitation. The silt (fine sediment) will be removed on the upstream and downstream side of the miter gate, and the gate leafs will be overhauled and painted.

D. Lock Miter Gate Machinery.

1. Present Condition. The main lock miter gate machinery is in poor condition from over 50 years of operation. The machinery is located in four pits in the lock walls. The bottom of the pits is at elevation 587.0. Floods that exceed elevation 587.0 fill the machinery pits with water and silt, a condition that has occurred every 3 years on the average. The four motors for the gate machinery are in the pits. The two downstream miter gate motors must be temporarily relocated when the river tailwater stage reaches elevation 586.7, and the two upstream miter gate motors must be relocated when the river reaches elevation 587.0. The machinery gears and bearings in the pit are worn and do not operate smoothly. If the machinery would fail during the navigation season, the lock could only be operated at about 40 percent efficiency until the machinery was required because the gates would have to be opened and closed by towboats. Spare parts for the machinery are increasingly difficult to get.

2. Proposed Rehabilitation. The existing machinery will be removed and replaced on top of the lock wall with new machinery. A spare motor will be provided at the lock. Also, since it is anticipated that the machinery eventually will be replaced at all the Mississippi River locks, the new machinery will be made interchangeable at all the locks.

E. Lock Tainter Valve Machinery.

1. Present Condition. The tainter valve machinery also has been in service for over 50 years and is now in poor condition. The machinery is in four pits in the lock walls. The bottom of the pits is elevation 587.87. Water can enter the pits during flood periods from the tainter

valve at the bottom of the pit and fill the gears with silt and water, a condition that has occurred every 3 years on average. The gears for the tainter valve machinery in the pit are worn. The valve limit switches are in the machinery pit and have to be sealed when the river exceeds elevation 587.0. The tainter valves were last painted in 1974 and need to be repainted.

2. Proposed Rehabilitation. The existing machinery will be removed and replaced on top of the lock wall with new machinery, and the tainter valves will be cleaned and painted. A spare motor will be provided at the lock. Also, since it is anticipated that this machinery will be replaced at all the Mississippi River locks, the new machinery will be made interchangeable with all the locks.

#### F. Lock and Dam Electrical Equipment.

1. Present Condition. The electrical equipment at the lock is over 50 years old and is deteriorated from heat generated during operation and other causes. The electrical equipment poses a fire safety hazard and a lock reliability problem as well as being inadequate for the new machinery. Maintenance of electrical equipment is currently accomplished by repairing existing parts because replacement parts are not available. This method of maintenance leads to frequent breakdowns of electrical equipment which sometimes leads to delays for barge traffic.

2. Proposed Rehabilitation. The existing electrical equipment, including switch gears, panels and contacts, will be removed and replaced with new equipment to meet current design standards. In addition, all existing conduit and lead-covered cable will be replaced with plastic-insulated copper cable. The lighting system will be rewired, and the transformers will be relocated from the well to poles above flood stages.

#### G. Dam Piers.

1. Present Condition. Pattern cracking at some of the pier tops and other horizontal surfaces has been observed. Water is leaching into the cracks and is causing the pier concrete to deteriorate. Water is also accumulating in several pier access wells and is causing steel hatches and ladders to rust. The pier nosing and other metal hardware is in need of cleaning and painting. The grout around the trunnion boxes is deteriorating.

2. Proposed Rehabilitation. The pier tops and other horizontal faces will be sealed with concrete and sloped to drain. The deteriorated grout around the trunnion boxes will be removed and replaced. Pier nosings, the inside and outside of trunnion boxes, and other metal surfaces on the piers will be cleaned and painted.

#### **H. Roller Gates.**

1. **Present Condition.** The overall condition of the structural steel of the roller gates is good. The outside of the gates were last painted in 1977. The insides of the gates have not been painted since they were built. The hoisting chain is in poor condition. The gate machinery is in good condition since infrequent use does not put a heavy demand on the machinery. However, electrical switchgears and wiring are in poor condition.

2. **Proposed Rehabilitation.** The inside and outside of the roller gates will be cleaned and painted, and the switchgears and wiring for the machinery will be replaced. The lower portion of the hoisting chain will be replaced with more corrosive resistant steel and bronze bushings.

#### **I. Tainter Gates.**

1. **Present Condition.** The overall condition of the structural steel of the tainter gates is good. The outside of the gates were last painted in 1977. The insides of the gates have not been painted since they were built. The inside and outside of the trunnion boxes are also in need of painting. The hoisting chains are in poor condition. The electrical switchgear and wiring for the machinery are in poor condition.

2. **Proposed Rehabilitation.** The insides and outsides of the tainter gates and trunnion boxes will be cleaned and painted. The hoisting chains will be replaced with a new type of chain that requires less maintenance. The switchgears and wiring will be replaced.

#### **J. Service Bridge.**

1. **Present Condition.** The service bridge was last painted in 1974. The grout around the bridge bearing pads is cracking and should be repaired to prevent further deterioration. The service bridge walkway is slippery when wet and a safety problem.

2. **Proposed Rehabilitation.** The deteriorated grout will be removed around all the bridge bearings and new grout will be placed and the service bridge will be painted. The timber decking on the service bridge walkway will be replaced with non-skid steel grating.

#### **K. Emergency Bulkheads.**

1. **Present Condition.** The emergency bulkheads are in poor condition. The painted surfaces are badly weathered and the metal is corroding. The timber seals are deteriorated and need to be replaced.

2. **Proposed Rehabilitation.** The emergency bulkheads will be repaired, sandblasted, and painted. The wooden seals will be replaced with rubber seals.

L. Dredging and Scour Protection. Accumulated silt deposits on the upstream and downstream side of the emergency lock will be removed to a placement site located directly behind the lower guidewall. This area currently serves as an equipment storage area and river access for work barges. Sand deposits upstream and downstream of the dam will be removed to allow installation of the scour protection. Excavated sand will be deposited at two locations along the south side of the lock and dam entry road. These locations will be groomed to create additional parking for fishermen and other recreationists (plate EA-4). The two parking areas will also be designated as secondary disposal sites for the silt material from the emergency lock if needed. Erosion control will be used during placement, and seeding will take place immediately after placement. The following table shows the total material removed will be approximately 15,000 cubic yards (CY).

Quantity Estimates (Cubic Yards)  
Lock and Dam 13

<u>Material</u> <u>Approx. Total</u>	<u>Upstream</u>	<u>Downstream</u>
Rock fill 32,000	12,000	20,000
Derrick stone 21,000	12,000	9,000
Excavated sand 7,500	2,500	5,000
Fine sediments 7,500	7,500	

Scour protection rock will be used to line, or armor, existing bottom contours around the dam. Approximately 53,000 CY of material will be used.

Upstream rockfill	12,000 CY
Downstream rockfill	20,000 CY
Upstream derrick stone	12,000 CY
Downstream derrick stone	9,000 CY

M. Storage Yard Tracks.

1. Present Condition. There are four sections of track at the storage yard. The track is used to move the service yard flat cars on which the emergency bulkheads are stored. The ties for the track are deteriorated and the ballast is clogged with silt.

2. Proposed Rehabilitation. The ties and ballast for the storage yard tracks will be replaced.

N. Overflow Section.

1. Present Condition. The overflow section consists of a compacted fill embankment and 20-foot-diameter sheet pile cells. The embankment crown and slopes are covered with riprap stone as shown on plate EA-3. The voids in the riprap stone above elevation 583.0 are filled with slush concrete. Settlement up to 6 inches has occurred at the downstream edge of the sheet pile cells. The settlement has caused cracks in the slushed concrete on the riprap stone. Further deterioration and crack widening will occur unless remedial measures are taken.

2. Proposed Rehabilitation. The trees and brush will be removed from the overflow section, the voids under the slush concrete will be filled with grout, and a 6-inch layer of concrete with a reinforcing mat will be placed on top of the sheet pile cell embankment to prevent further deterioration.

O. Non-Overflow Section.

1. Present Condition. The non-overflow sections are located east and west of the lock. The non-overflow section west of the lock consists of a compacted fill embankment with a 20-foot top. The non-overflow section east of the lock is similar to the west section but it has a 26-foot top width. The upstream slope of the non-overflow sections both east and west of the lock are 1V on 3H and are covered with riprap. The downstream slopes are 1V on 4H. The downstream slope of the non-overflow section west of the lock is riprapped below water. Overtopping of the non-overflow sections could result in loss of pool under certain conditions. A report entitled *Upper Mississippi River, Nine-Foot Channel Navigation Project, Rehabilitation Project, Design Memorandum No. 1, General Design Memorandum, Pools 11 through 15* (September 1966) discussing overtopping and possible erosion of the non-overflow sections is on file at the Rock Island District office.

2. Proposed Rehabilitation. The recommendations of the above-referenced report were reviewed and updated in a report entitled *Mississippi River, Locks and Dams 11-22, Non-Submersible Earth Dikes, Design Analysis Report* (December 1990). The present rehabilitation plan for the non-overflow earth dikes remains the same as the December 1990 report. The tops and downstream slopes of the non-overflow sections west of the gated dam will be riprapped to prevent erosion due to overtopping. A relatively small riprap gradation is required for the low overtopping velocities and the material can be placed directly on the compacted sands of the dike. The riprap gradation is shown below.

**Non-Submersible Earth Dike  
Riprap Gradation**

<u>% Lighter by Weight</u>	<u>Weight of Pieces in lbs.</u>
100	90-40
50	30-20
15	15-5

P. Installation of Bubbler System. Low-volume bubbler systems are presently located at several lock sites on the Upper Mississippi River. These low-volume bubbler systems generate air through diffusers in the bottom of the lock to prevent ice accumulation on the miter gates. The proposed bubbler system would consist of dual capacity, low-volume and high-volume blowers, with piping systems located in the miter gate areas. The high-volume blower would be capable of producing 750 cubic feet per minute (cfm) of air at 100 pounds per square inch (psi), while the low-volume blower would produce 55 cfm of air at 12 psi. This dual capacity system would prevent ice accumulation on the miter gates and also would keep the gate recess clear of floating ice and debris. The piping system for the bubblers would be placed directly on the main lock structure. The upstream and downstream compressors would be placed on top of the lock wall.

**III. ALTERNATIVES.**

Alternatives which were considered include:

**A. Primary Rehabilitation.**

1. No Federal Action. This alternative was not selected because the facilities are approaching the limits of their serviceable life. Rehabilitation of Lock and Dam 13 is authorized by the River and Harbor Act of July 3, 1930.

2. Rehabilitation of the Facility to Original Design Specifications or Criteria. This alternative was not selected because review of the facilities under the Major Rehabilitation Program and the Dam Safety Assurance Program indicated that certain features are outdated and/or unsafe. This alternative would eliminate the need for dredging/excavation for scour protection.

3. Rehabilitation of the Facility to Updated Specifications and Criteria. This is the preferred alternative and is described in detail in Section 11, Project Description, and is seen on plate EA-2.

## **B. Dredged Placement Sites.**

1. No Federal Action. Nonremoval of sediments from the emergency lock facility will prohibit maintenance and use of the lock facility. Therefore, this alternative is not acceptable.

2. Landside of the Upper Guidewall. This alternative was not selected because storage capacity was limited and it would prohibit access to the boat ramp. Disposal here would fill approximately 1 acre of open backwater habitat.

3. Landside of the Upper Approach Dike. This alternative was not selected because storage capacity was limited and it would prohibit access to the boat ramp.

4. Landside of the Lower Guidewall. This is the preferred alternative for fine sediments and is shown in detail on plate EA-3.

5. South Side of the Lock and Dam Entry Road. This is the preferred alternative for coarse sediments. Parking lot construction will be completed with the dredged material (plate EA-4).

## **IV. AFFECTED ENVIRONMENT.**

A. Natural Resources. Lock and Dam 13 is situated in an aquatic resource-rich environment which developed indirectly from the dam's construction in 1939. The value of these aquatic resources is partly due to the variety of habitats which occur in close proximity to each other. Waters immediately upstream of the dam are relatively deep and slow. Bottom substrata are predominantly silt with occasional woody debris. Rooted aquatic vegetation also is present along shorelines and submerged islands upstream from the dam. These areas provide an important food source for migratory waterfowl and serve as spawning and nursery habitat for several fish species such as bluegill, largemouth bass, and crappie. Waterfowl hunters and commercial and recreational fishermen regularly use lower Pool 13.

Similar to other dams along the river, the Lock and Dam 13 tailwater is an important commercial and recreational fishery resource. The interspersions of turbulent and quiet water provides ideal feeding, resting, and/or spawning habitat for white bass, northern pike, largemouth bass, bluegill, crappie, bullhead, walleye, sauger, and freshwater drum. The spillway area has a similar fishery.

No commercially important mussel beds exist in the project vicinity.

From December through March, the dam tailwaters and shoreline are regularly used by wintering bald eagles as feeding and roosting areas. Tailwaters provide a plentiful supply of fish which, during extended cold spells, may



be the eagles' only source of food. Eagle watching at Lock and Dam 13 is also a popular winter activity.

**B. Endangered Species.** The following federally endangered and threatened species may be present in the project area:

Indiana bat	<i>Myotis sodalis</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>
Higgins' eye pearly mussel	<i>Lampsilis higginsii</i>

The Indiana bat prefers habitat containing dead trees with loose bark to establish nursery sites. Caves are used in the winter for hibernation. The proposed work will not impact any of these types of habitat. No Indiana bats have been observed in the project area.

Bald eagles are generally limited to winter residency in the project area. Eagle use in the project area varies from winter to winter depending on ice conditions. Temporary disruption of eagle foraging behavior is the primary potential effect of construction activity around the project sites. Given the mobility of the species and the proximity of available foraging habitat throughout the study area, it is anticipated that disturbance to foraging birds will not affect the wintering bald eagle population. However, winter activity on the project site near bald eagles will be kept to a minimum to reduce impacts to that species.

While Higgins' eye pearly mussels have been documented in the study area, their presence at the project site is unlikely. Benthic disturbance in the tailwater area of the project facility is anticipated to have no effect on the endangered mussel species as well as other mussels.

Species listed as endangered or threatened in Illinois and/or Iowa that may be present in the project area are shown below:

River otter	<i>Lutra canadensis</i>
Lake sturgeon	<i>Acipenser fulvescens</i>

Backwater habitat between river miles 521.0-523.0L has been designated as essential river otter habitat. The proposed disposal site may cause temporary disruption to potential river otter utilization in the immediate area. However, any disruption will end upon project completion.

**C. Cultural Resources.** In 1985, the U.S. Army Corps of Engineers' 1927-1940 Upper Mississippi River Nine-Foot Channel project was considered to be eligible for listing on the National Register of Historic Places (NRHP) since it possesses integrity of location, design, setting, materials, workmanship, feeling, and association as a significant national transportation system. It is the Corps of Engineers' policy to ensure that the overall historic character, integrity, and preservation of these significant qualities are preserved.

In 1987, a Programmatic Memorandum of Agreement (PMOA) was executed by the Corps of Engineers, the Advisory Council on Historic Preservation, and the Illinois, Missouri, Wisconsin, and Iowa State Historic Preservation Officers (SHPO's) (Appendix C). The Programmatic Environmental Impact Statement entitled, *Major Rehabilitation Effort: Mississippi River Locks and Dams 2-22 and Illinois Waterway from La Grange to Lockport Locks and Dams* (PEIS 1989) and the PMOA delineate significant cultural, architectural, and engineering resources (PEIS 1989:EIS-88).

This PEIS also describes compliance with the PMOA by completion of historic, photographic, and architectural documentation for the Historic American Engineering Record (HAER) under direction of the National Park Service (PEIS 1989:99). The HAER documentation was completed by Rathbun and Associates, filed with the Library of Congress (accepted in November 1988), and sent to the SHPO signatories.

## V. ENVIRONMENTAL IMPACTS OF THE PREFERRED ACTION.

Effects of the preferred action on natural and cultural resources are summarized in table EA-1.

### A. Socioeconomic Impacts of the Preferred Action.

1. Community and Regional Growth. No significant impacts to the growth of the community or region would be realized as a direct result of the project. However, the existence of a cost-effective, efficient transportation system provided by the Upper Mississippi River locks and dams has stimulated the growth of river communities and the entire Midwest region. Rehabilitation of Lock and Dam 13 indirectly will help to provide for continued growth opportunities in Clinton, Iowa, and Fulton, Illinois, and the region.

2. Displacement of People. The proposed maintenance activities at Lock and Dam 13 would necessitate no residential relocations.

3. Community Cohesion. No impacts to community cohesion would be realized as a result of the project, given the limited residential or other development in the project vicinity.

4. Public Facilities and Services. Safety at the lock and dam facilities would improve following completion of the required maintenance. The rehabilitation would result in lower probability of service interruptions for maintenance and repairs, thus benefiting both commercial and recreational craft.

5. Life, Health, and Safety. The proposed maintenance activities would reduce safety threats to lock and dam personnel and towing industry personnel. The bubbler system will reduce the hazard now associated with

TABLE EA-1

Effects of the Preferred Action  
on Natural and Cultural Resources

<u>Types of Resources</u>	<u>Authorities</u>	<u>Measurement of Effects</u>
Air quality	Clean Air Act, as amended (42 U.S.C. 165h-7, et seq.)	No significant effect
Areas of particular concern within the coastal zone	Coastal Zone Management Act of 1972, as amended	Not present in plan- ning area
Endangered and threatened species critical habitat	Endangered Species Act of 1973, as amended (16 U.S.C. 1531, et seq.)	No significant impacts anticipated
Fish and wildlife	Fish and Wildlife Coordi- nation Act (16 U.S.C. 661, et seq.)	No significant effect
Floodplains	Executive Order 11988, Flood Plain Management	No significant effect
Historic and cultural properties	National Historic Preserva- tion Act of 1966, as amended (16 U.S.C. 470, et seq.)	No significant effect
Prime and unique farmland	CEQ Memorandum of August 1, 1980; Analysis of Impacts on Prime or Unique Agricul- tural Lands in Implementing the National Environmental Policy Act	No significant effect
Water quality	Clean Water Act of 1977, as amended (33 U.S.C. 1251, et seq.)	No significant effect
Wetlands	Executive Order 11990, Protection of Wetlands, 24 May, 1977	Present in planning area; preservation anticipated
Wild and scenic rivers	Wild and Scenic Rivers Act, as amended (16 U.S.C. 1271, et seq.)	Not present in plan- ning area

chipping ice from the lock gates and walls, and the pushing of ice and debris away from the gates with long poles.

6. Property Values and Tax Revenues. Limited, short-term effects on property values or tax revenues could result from the proposed maintenance activities at Lock and Dam 13. Long-term effects on property values and tax revenues would be related to community and regional growth.

7. Business and Industrial Growth. An increase in business and industrial activity would be noticed during the rehabilitation process. A portion of this increase would be attributable to purchases made for the rehabilitation of the lock and dam. The remaining increase would result from purchases made by construction workers (e.g., meals, lodging).

The Lock and Dam 13 rehabilitation will require no business relocations.

8. Employment and Labor Force. Rehabilitation of the lock and dam temporarily would increase area employment; an average of 100 workers would be employed for the maintenance efforts, with approximately 200 workers employed during the 2 peak months of construction. Workers would be hired through labor unions at Clinton, Iowa, and other nearby communities.

Long-term impacts to employment or the labor force in the Clinton, Iowa, area would be related to business and industrial growth.

9. Farm Displacement. No farms would be affected by the proposed construction activity and the lock and dam.

10. Noise. Heavy machinery would temporarily increase noise levels during project construction. The immediate project area features recreational, agricultural, and low density residential development. While construction noise potentially could disturb recreationists, it is unlikely that this noise level increase would significantly affect the surrounding population.

11. Aesthetic Values. The aesthetic appeal of any type of construction activity is low; however, construction would be temporary. The results of the proposed activity (i.e., concrete repair, machinery replacement, painting, and lighting improvement), should improve aesthetic values at facilities over the long term.

#### C. Environmental Impacts of the Proposed Action.

1. Manmade Resources. Pools 13 and 14 above and below the project site, respectively, may be considered manmade resources since they are natural resources modified by man to facilitate waterborne commerce on the Upper Mississippi River. They are created and controlled by operation of the lock and dam in concert with other components of the Upper Mississippi River Nine-Foot Channel Navigation project. The facilities are manmade resources and are a vital part of the national infrastructure.

At this time, rehabilitation of the facilities is anticipated to maintain existing navigation conditions in Pools 13 and 14. Completion of the project should contribute to alleviation of existing problems involving degradation of manmade resources of the Upper Mississippi River Nine-Foot Channel Navigation project.

A staging area for contractor equipment will be established on existing parking lots and adjacent lawn areas. These areas are not environmentally sensitive and will be restored once the proposed work is completed.

2. Natural Resources. The majority of project activities will take place on the facility structures themselves, and, therefore, will have a negligible effect on natural resources. Potential sources of impacts from a project of this nature involve sandblast residue, paint-solvent overspray, concrete debris, and metal scrap. Asbestos insulating coverings from electrical components will require special handling and disposal as specified in 40 CFR 61.140. Sandblast residue and paint overspray will be controlled by the use of tarps or other containment devices.

Concrete debris and metal scrap will be removed and disposed of in compliance with applicable statutes. *Guide Specification Civil Works Construction for Environmental Protection*, CW-1430, July 1978, provides for submission of an environmental protection plan by successful contractors. Further guidelines in this document call for the *Protection of Water Resources* (Sec. 7.4) and *Protection of Air Resources* (Sec. 7.5). Rock Island District staff will review the Environmental Protection Plan submitted by the successful contractor prior to commencement of project activities. Corps inspectors will monitor adherence to this plan.

Dredging activities at the emergency lock will eliminate existing benthic populations. Composed primarily of accreted silt and clay, this benthic substrate would typically support a community of burrowing invertebrates such as mayfly larvae, chironomids, and diptera larvae. Following dredging and rehabilitation activities, sediment accretion is anticipated to resume on the upstream side of the emergency miter gates. This area typically would be recolonized by invertebrates shortly thereafter.

Dredging activities above and below Dam 13 will eliminate benthic conditions at those areas. However, current velocities and flow patterns immediately above and below roller and tainter gate dams limit bottom-dwelling organisms to crevice-inhabiting invertebrates such as mayfly and caddisfly larvae. These forms survive in interstitial spaces provided by scour protection rock and adjacent coarse substrate.

Substrate to be dredged upstream and downstream of Dam 13 consists primarily of hard-packed sand, and, as such, would typically provide little usable habitat for anything other than burrowing invertebrates. It is anticipated that excavation of the existing substrate and replacement with rock fill will improve available invertebrate habitat and spawning and foraging habitat for certain fish species.

Where no excavation is necessary, scour protection rock will be used to line, or armor, existing bottom contours around each dam. No fishery habitat beyond the dam foundation, in the form of scour holes, will be lost to filling.

Dredging of silty material from the auxiliary lock is planned to be done with a deck-mounted crane and clamshell bucket. Dredging of material above and below Lock 13 may be done as above or with a hydraulic cutterhead dredge.

It is currently proposed that all dredged or excavated materials be placed at the sites noted in Section III - Alternatives (paragraphs B.4. and 5.). As referenced in Section II - Project Description, paragraph I, the three disposal sites currently possess limited/marginal habitat value; therefore, no significant detrimental impacts will result.

Wildlife use of the placement areas is primarily by transient herpetofauna, birds, and small mammals. The availability of similar habitat nearby and eventual landscaping and construction indicate that effects of dredged placement will be minimal and temporary.

Winter work at the lock and dam may disrupt foraging behavior of migratory, or winter resident, bald eagles. The availability of foraging areas usually found at naturally occurring open areas, other locks and dams, and power station outlets indicates that foraging at Lock and Dam 13 is not critical to survival of that species. However, as stated earlier, winter activity on the project site near bald eagles will be kept to a minimum to reduce impacts to that species.

3. Cultural Resources. No significant impacts to cultural resources are anticipated. Construction and contemporary photographs of Lock and Dam 13 (HAER, Vol. 2:IL-26-1 to IL-26-14), construction drawings, and early Corps maps and river charts document that the proposed dredged material placements and parking lot construction and enlargement are located in areas extensively disturbed by previous construction activities.

The PMOA documents that the rehabilitation actions are required maintenance and proposed in compliance with the Secretary of the Interior's *Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings* (Standards). Under Stipulation 2B of the Programmatic Agreement, the Corps has determined that the work is in accordance with the Standards and will not affect any significant elements of the NRHP-eligible Upper Mississippi River Nine-Foot Channel Navigation project, nor any other eligible or NRHP-listed properties.

On May 22, 1991, the SHPO responded by letter that the project, as proposed, will have no effect on Lock and Dam 13 (Appendix A). On June 13, 1991, the SHPO was notified of the proposal to place any excess dredged material on the levee to construct and enlarge parking lots (Conversation Record, Appendix A). The SHPO concurred, on August 20, 1991 (Appendix A) with the Corps' determination that no significant historic properties would

be affected and that the proposed parking lot construction and expansion using dredged material is appropriate.

4. Air Quality. Impacts to air quality will occur from exhaust emissions, volatile paint solvents, fugitive particles from sandblasting, and dust particles from concrete removal and rock placement.

These impacts will be temporary and will not result in significant or permanent violations of air quality standards.

5. Water Quality. Construction materials will consist of physically stable and chemically noncontaminating material such as corrosion-resistant steel, concrete, and quarried limestone rock at Lock and Dam 13. Placing these materials at Lock and Dam 13 will require processing under Sections 401 and 404 of the Clean Water Act.

A Section 404(b)(1) Evaluation has been prepared for Lock and Dam 13 and is included in this report as Appendix B. Section 401 certification or waiver will be obtained from Illinois and Iowa agencies.

At Lock and Dam 13, the placement of construction materials and resuspension of normal bottom materials will contribute to localized, temporary elevations in turbidity. While the contractor will be bound by the requirements and conditions set forth in *Guide Specification, Civil Works Construction for Environmental Protection*, CW-1430, July 1978, Section 7.3, certain loss of paint chips, residue, and other materials to the aquatic environment at the construction site is inevitable. Any effects, however, are anticipated to be minimal and short-term.

## VI. COMPLIANCE WITH ENVIRONMENTAL QUALITY STATUTES.

Compliance is summarized in table EA-2.

A. Endangered Species. The U.S. Fish and Wildlife Service (USFWS) was formally consulted concerning federally endangered species, as required by the Endangered Species Act of 1973, as amended. In their letter response, the USFWS had no concerns or objections to the project as proposed (Appendix A).

The states of Iowa and Illinois were consulted for comments as to impacts to State endangered species. Both state resource agencies concluded there will be no impacts to any State-listed endangered species.

B. Cultural Resources. Under Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), Federal agencies are required to avoid impacts if prudent and feasible measures can be found. Likewise, Federal agencies also are required to repair and maintain significant (or potentially significant) historic properties under their jurisdiction.

TABLE EA-2

Relationship of Plans to Environmental Protection  
Statutes and Other Environmental Requirements

<u>Federal Policies</u>	<u>Compliance</u>
Archaeological and Historic Preservation Act, 16 U.S.C. 469, et seq.	Full compliance
Clean Air Act, as amended, 42 U.S.C. 1857h-7, et seq.	Full compliance
Coastal Zone Management Act, 16 U.S.C. 1451, et seq.	Not applicable
Endangered Species Act, 16 U.S.C. 1531, et seq.	Full compliance
Estuary Protection Act, 16 U.S.C. 1221, et seq.	Not applicable
Federal Water Project Recreation Act, 16 U.S.C. 460-1(12), et seq.	Full compliance
Fish and Wildlife Coordination Act, 16 U.S.C. 601, et seq.	Full compliance
Land and Water Conservation Fund Act, 16 U.S.C. 460/-460/-11, et seq.	Not applicable
Marine Protection Research and Sanctuary Act, 33 U.S.C. 1401, et seq.	Not applicable
National Environmental Policy Act, 42 U.S.C. 4321, et seq.	Full compliance
National Historic Preservation Act, 16 U.S.C. 470a, et seq.	Full compliance
River and Harbor Act, 33 U.S.C. 403, et seq.	Full compliance
Watershed Protection and Flood Prevention Act, 16 U.S.C. 1001, et seq.	Not applicable
Wild and Scenic Rivers Act, 16 U.S.C. 1271, et seq.	Full compliance
Flood Plain Management (Executive Order 11988)	Full compliance
Protection of Wetlands (Executive Order 11990)	Full compliance
Environmental Effects Abroad of Major Federal Actions (Executive Order 12114)	Not applicable
Farmland Protection Act	Full compliance
Analysis of Impacts on Prime and Unique Farmland (CEQ Memorandum, 11 Aug 80)	Full compliance

## NOTES:

- a. Full compliance. Having met all requirements of the statute for the current stage of planning (either preauthorization or postauthorization).
- b. Partial compliance. Not having met some of the requirements that normally are met in the current stage of planning.
- c. Noncompliance. Violation of a requirement of the statute.
- d. Not applicable. No requirements for the statute required; compliance for the current stage of planning.



Overall, the major rehabilitation program has been formulated to achieve both of these mandates and fulfill the stipulations of the PMOA.

Most of the rehabilitation actions are minor in scope and will have no adverse effect on characteristics which contribute to the significance of the navigation system as a whole or individual structures protecting and preserving those characteristics which contribute to National Register significance, fulfilling the compliance requirements set forth under NHPA. Proposed dredged material placement will be confined to those areas previously disturbed by levee or lock and dam construction.

C. Federal Water Project Recreational Act. The construction of the proposed project would have no effect on provisions of this act.

D. Fish and Wildlife Coordination Act. The U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency, Iowa Department of Natural Resources, and Illinois Department of Conservation have been actively involved in this action. Letters of comment and telephone conversation records are reproduced in Appendix A.

E. Wild and Scenic Rivers Act. No rivers listed as "wild and scenic" or rivers in the inventory for listing as "wild and scenic" will be affected by the project.

F. Executive Order 11988 (Flood Plain Management). Executive Order 11988 directs Federal agencies to: (1) avoid development in the floodplain unless it is the only practical alternative; (2) reduce the hazards and risks associated with floods; (3) minimize the impact of floods on human safety, health, and welfare; and (4) restore and preserve the natural and beneficial values of the floodplain. The proposed action is in accordance with Executive Order 11988.

G. Executive Order 11990 (Protection of Wetlands). Executive Order 11990 directs Federal agencies to minimize the destruction, loss, or degradation of wetlands, and enhance the natural and beneficial values of wetlands when a practical alternative exists. Wetland definitions may apply to bottomland and shoreline areas within the project area. The proposed action is in accordance with Executive Order 11990.

## VII. ENVIRONMENTAL IMPACTS OF OTHER ALTERNATIVES.

### A. Primary Rehabilitation.

1. No Action. This alternative would allow the deterioration of the subject facility to a potentially inoperable condition.

Impacts could be incurred through loss of pool, flooding, rerouting of commodities to land-based transport, either short-haul around the facility

or long-haul to final destination points, and a variety of other consequential activities resulting from the instability of Pool 13 and the remainder of the waterway system. Sediment would continue to fill the emergency lock, and scour hole development around the dam would continue. Regulation of each pool would be hindered by lack of control at the dam.

2. Rehabilitation of the Facility to Original Design Specifications or Criteria. Other than essentially the same short-term effects as noted for the preferred alternative (proposed action), there would be no overall change from existing conditions.

B. Dredging and Placement.

1. No Federal Action. Existing conditions would remain unchanged. Sedimentation would continue to fill the emergency lock area.

2. Landside of the Upper Guidewall. Fill material would impact approximately 1 acre of open backwater habitat.

3. Landside of the Upper Approach Dike. Environmental impacts would be limited to removal of approximately 1/2 acre of pole-sized trees, brush, and grass.

VIII. PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED.

Dredge work, rock placement, and activities by work vessels will disrupt the local aquatic environment at Lock and Dam 13. Benthic constituents inhabiting the work areas will be disturbed.

Considering the general high fertility of the disposed material, it is anticipated that natural revegetation will be rapid. Further, the placement site for silty material will be planted with grass and trees, and later will be furnished with picnic tables for public use. The placement site for sandy material will be used as a base for parking areas along the lock and dam entry road to serve picnickers and fishermen. Hence, benefits are anticipated as public enjoyment through eagle watching and other recreational opportunities will be enhanced and the period of aesthetic impact will be minimized. Temporary impacts to air and water quality are unavoidable.

IX. RELATIONSHIP BETWEEN SHORT-TERM USE OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY.

As a vital component in the national transportation infrastructure, Lock and Dam 13 will continue to serve navigation interests, as well as to maintain river aquatic and terrestrial habitat.

Without the short-term use of the environment for rehabilitation activities, the locks and dams will continue to deteriorate, eventually reaching unsalvageable condition.

**X. ANY IRREVERSIBLE OF IRRETRIEVABLE COMMITMENTS OF RESOURCES WHICH WOULD BE INVOLVED IF THE PROPOSED ACTION SHOULD BE IMPLEMENTED.**

The property currently occupied by the lock and dam and formerly unpooled riverine habitat (pre-1930's condition) should be considered irretrievable for the life of the project. Time, labor, fuel, and other necessary construction materials also are irretrievable commitments.

**XI. RELATIONSHIP OF THE PROPOSED PROJECT TO LAND-USE PLANS.**

The operation and maintenance of Lock and Dam 13 do not conflict with any known Federal, State, or local land-use plans.

**XII. CONCLUSIONS, CONTRIBUTIONS TO CUMULATIVE SYSTEM EFFECTS.**

Environmental effects should not be significant. The project design will incorporate features to minimize or avoid impacts to natural and cultural resources. Dredged material placement has been, and will be, coordinated with appropriate Federal and State agencies. No project activities will take place prior to certification, or waiver or certification, under applicable purviews of the Clean Water Act.

The proposed maintenance/rehabilitation of Lock and Dam 13 involves maintenance and construction work to existing lock and dam features, such as concrete removal and replacement, steel work, sandblasting, painting, mechanical equipment replacement, and electrical equipment replacement. No new construction is proposed for this project.

Based on this analysis, the rehabilitation structures will retain operating and performance characteristics similar to their original design. At such time as new features are proposed for this site, they will be evaluated as to their impacts on local and system traffic and capacity.

**XIII. COORDINATION.**

Coordination for the project will be maintained with the following State and Federal agencies:

U.S. Fish and Wildlife Service  
U.S. Environmental Protection Agency  
U.S. Coast Guard  
Illinois Environmental Protection Agency  
Illinois Department of Conservation  
Illinois Department of Transportation  
Illinois State Historic Preservation Officer  
Advisory Council on Historic Preservation  
Iowa Department of Natural Resources

In a coordination response from the U.S. EPA, concerns were expressed over dredging and placement of sediments in a forested wetland. By using the coarser material for parking lot construction away from the wetland, no wetland will be impacted, thus avoiding any compensatory mitigation. Water quality concerns are addressed in the Clean Water Act 404(b)(1) Evaluation (Appendix B) in section WATER CIRCULATION, FLUCTUATION, AND SALINITY DETERMINATIONS.

In their coordination response, the Illinois Department of Transportation (IDOT) requested, and was subsequently sent, detailed plans, profiles, and cross sections of the originally proposed discharge site. Also, the IDOT wanted to be assured that consideration was given to disposal sites out of the floodway. Out-of-floodway disposal sites for this project are not cost effective and were rejected on that basis.

**FINDING OF NO SIGNIFICANT IMPACT**  
**ENVIRONMENTAL ASSESSMENT**  
**FOR**  
**LOCK AND DAM 13 MAJOR REHABILITATION**

I have reviewed the information provided by this Environmental Assessment, along with data obtained from Federal and State agencies having jurisdiction by law or special expertise, and from the interested public. I find that major rehabilitation of Lock and Dam 13 at Fulton, Illinois, will not significantly affect the quality of the human environment. Therefore, it is my determination that an Environmental Impact Statement is not required. This determination will be reevaluated if warranted by later development.


Alternatives considered include: (a) no Federal action; (b) rehabilitation of the facility to original design specifications and criteria; and (c) rehabilitation of the facility to updated specifications and criteria.

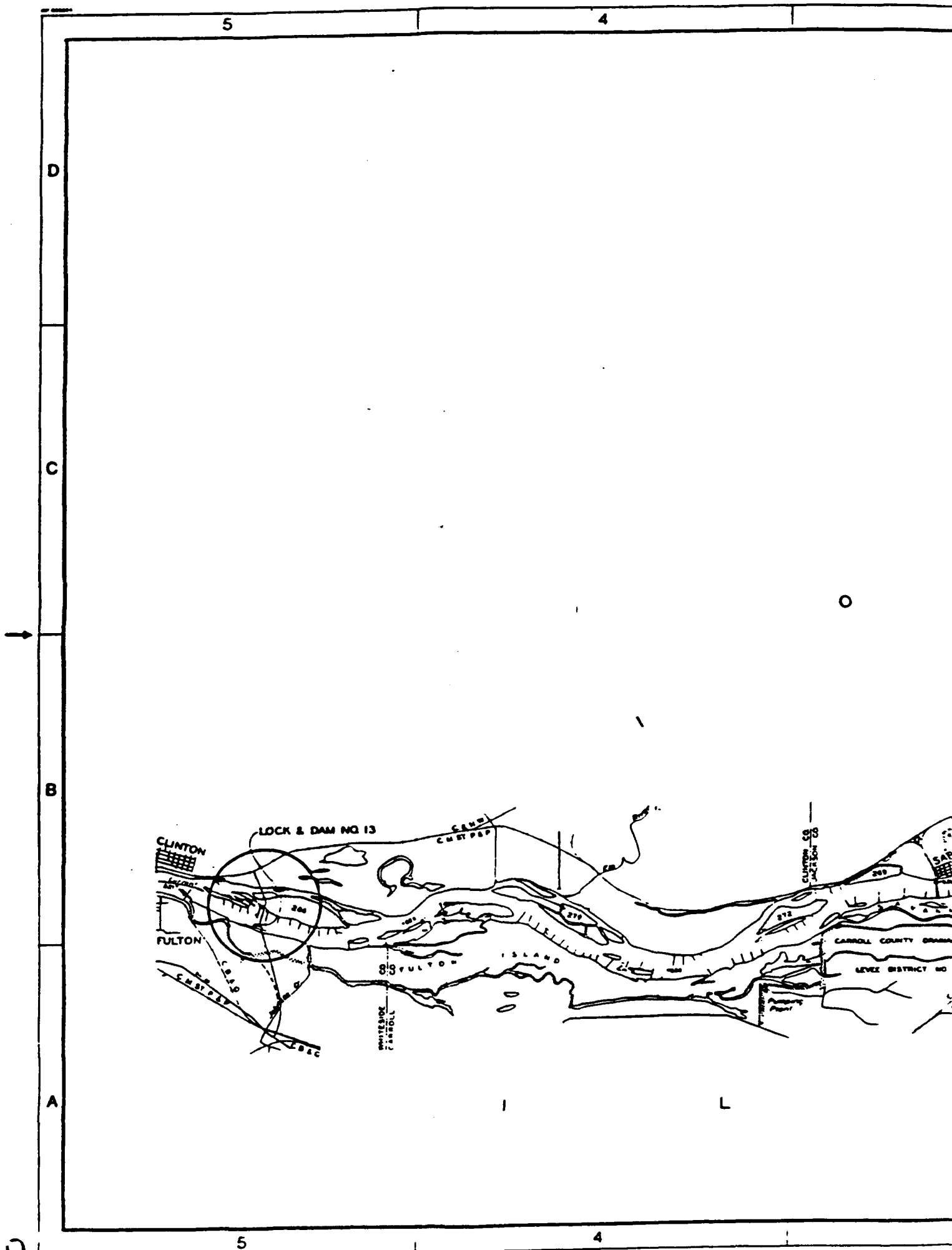
Factors considered in making a determination that an Environmental Impact Statement was not required were as follows:

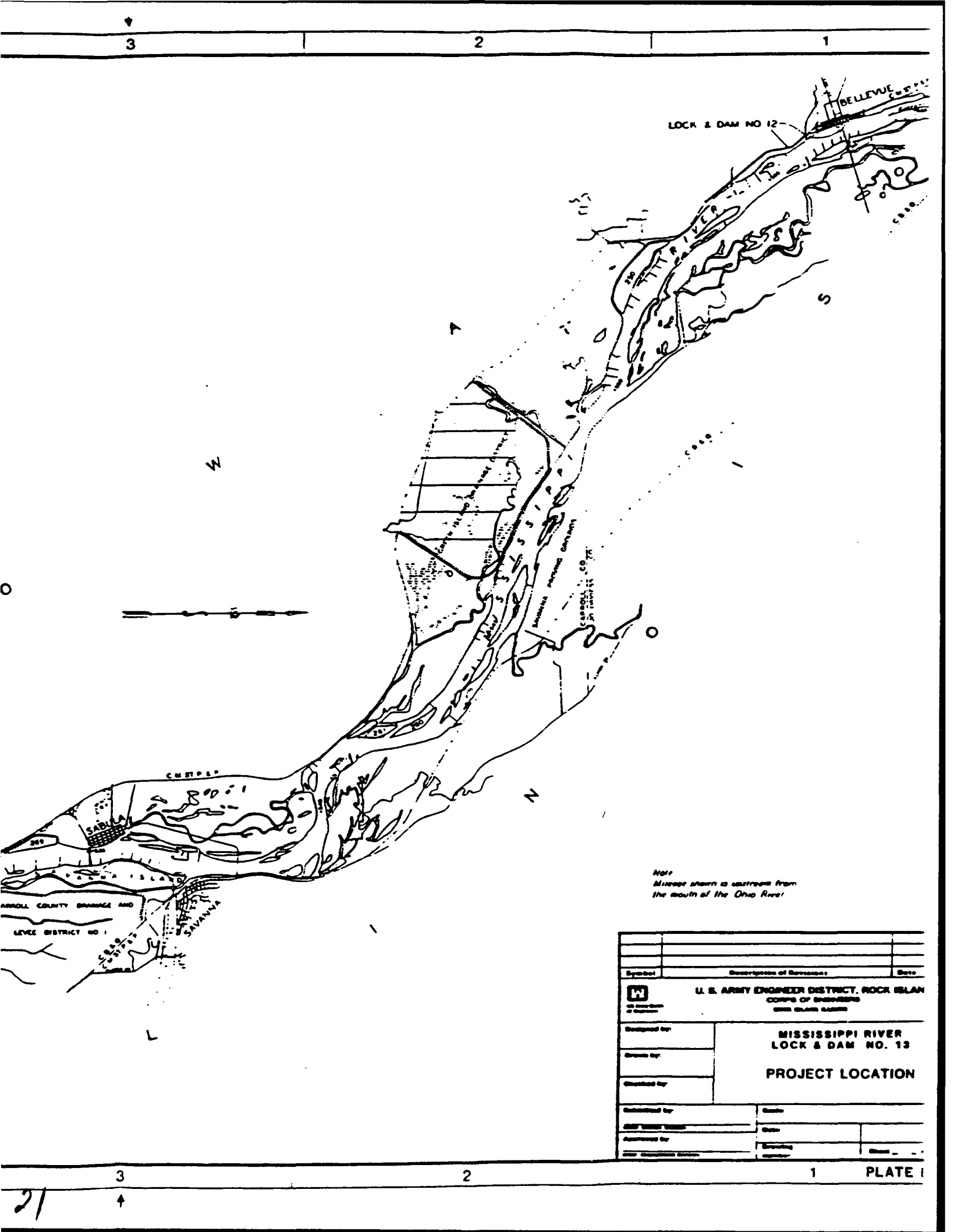
- a. No long-term adverse impacts to natural or cultural resources are anticipated. No endangered species, either State or Federal, will be affected by the project action.
- b. No significant expansion in tow traffic or the navigation capacity of the 9-foot channel will result from the proposed activity.
- c. Land use after the project should remain unaltered, and no economic impacts to the project area are anticipated.

8 Apr 73

Date

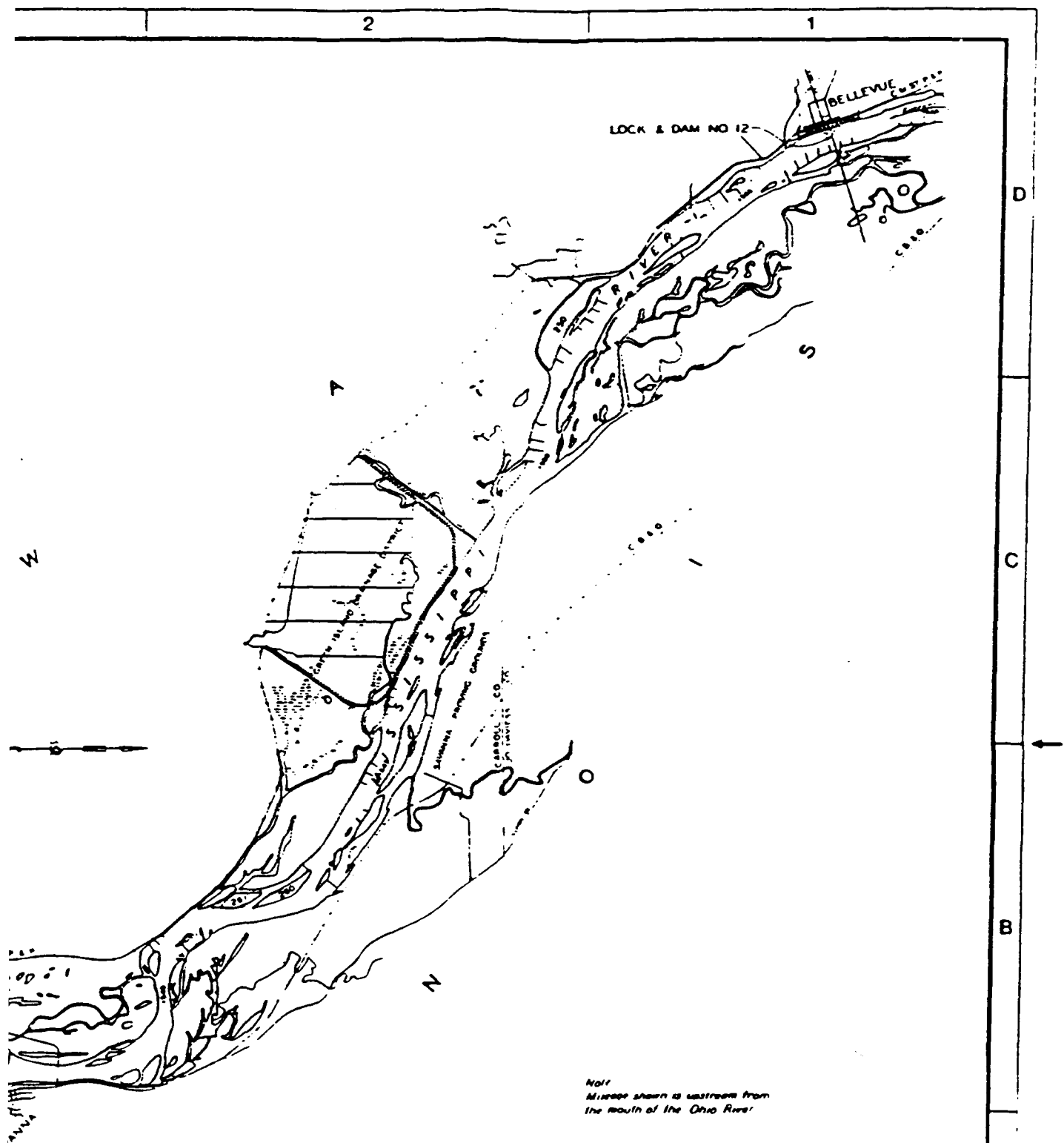
  
Albert J. Kraus  
Colonel, U.S. Army  
District Engineer





Note:  
Mileage shown is eastward from  
the mouth of the Ohio River

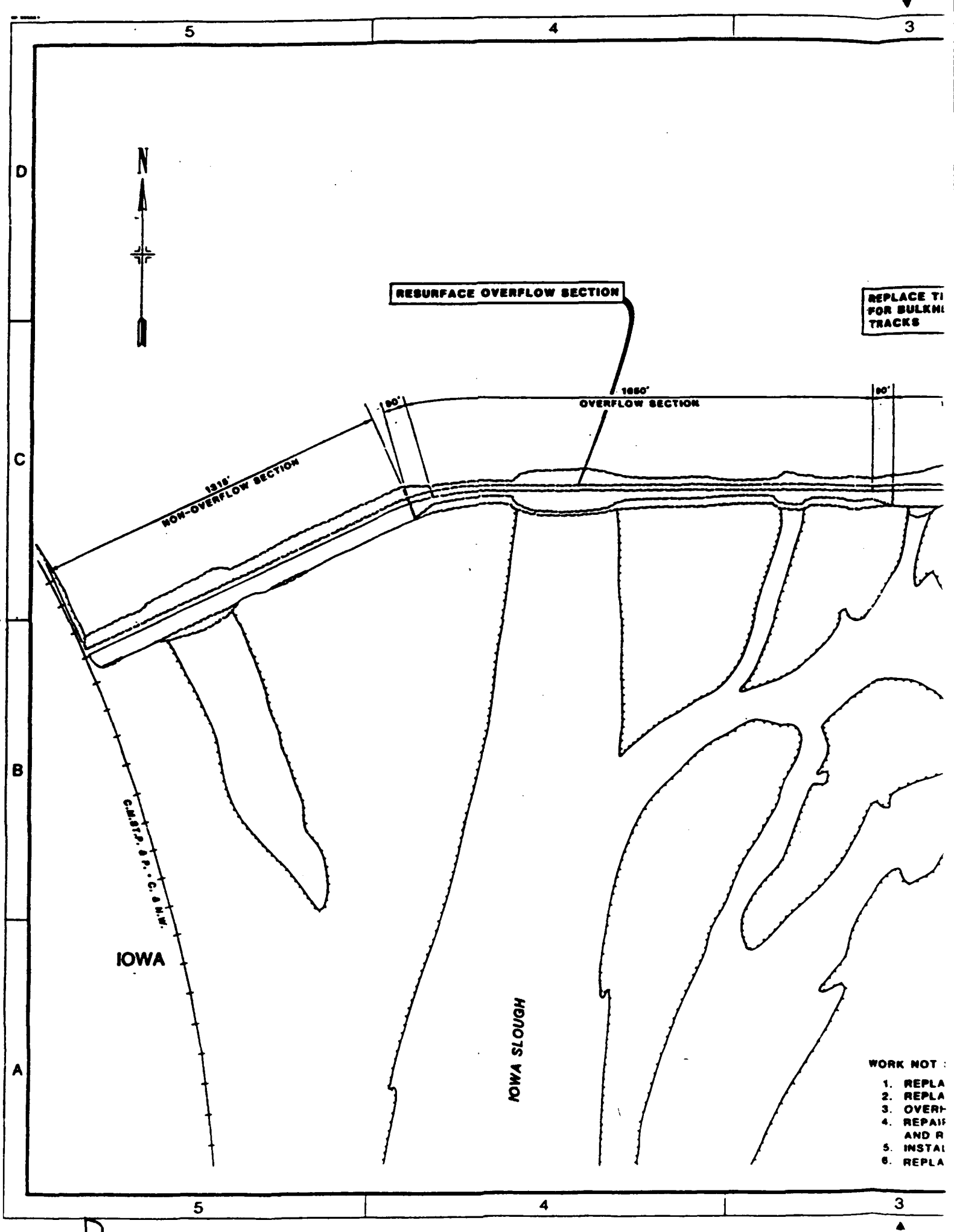
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Drawn by:				
Checked by:				
Reviewed by:		Date:		
Approved by:		Date:		
Special Instructions:		Drawing Number:		

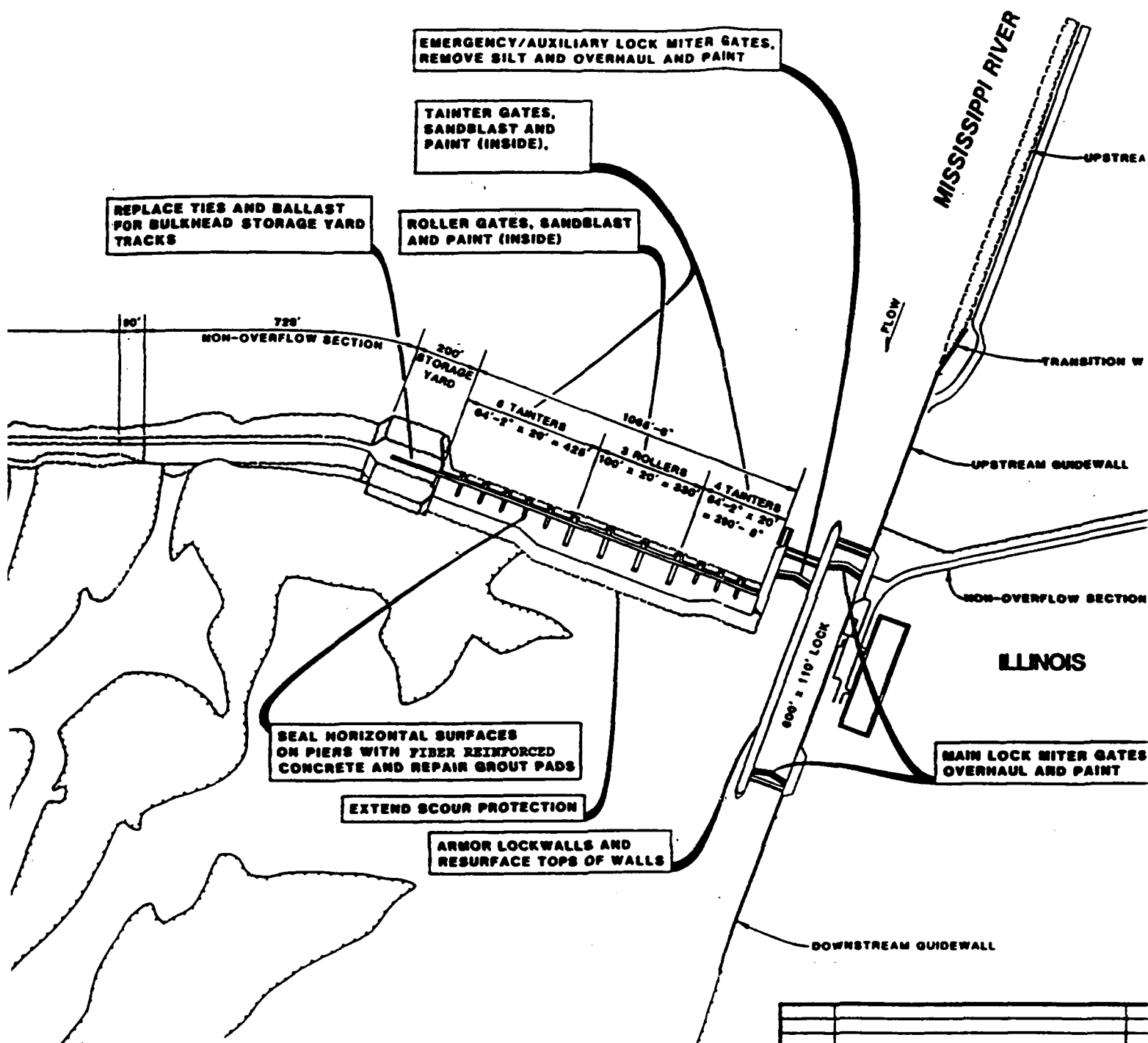


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Submitted by	Date				
Reviewed by	Date				
Approved by	Date				
Special Instructions	Remarks				

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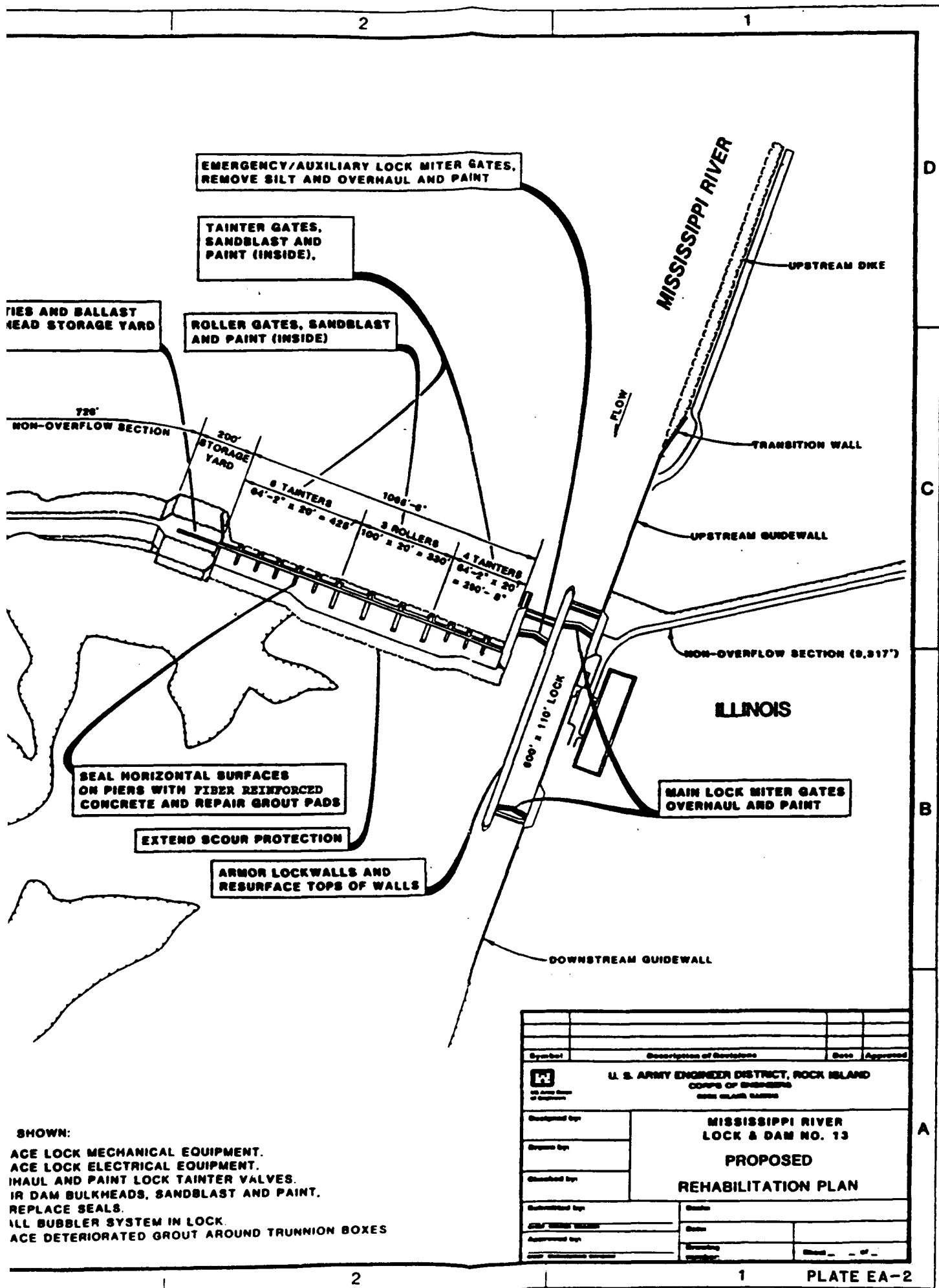




**WORK NOT SHOWN:**

1. REPLACE LOCK MECHANICAL EQUIPMENT.
2. REPLACE LOCK ELECTRICAL EQUIPMENT.
3. OVERHAUL AND PAINT LOCK TAITER VALVES.
4. REPAIR DAM BULKHEADS, SANDBLAST AND PAINT, AND REPLACE SEALS.
5. INSTALL BUBBLER SYSTEM IN LOCK.
6. REPLACE DETERIORATED GROUT AROUND TRUNNION BOXES

Symbol		Description of Symbols		Dr
<p><b>U. S. ARMY ENGINEER DISTRICT, ROCK ISLAND</b> CORPS OF ENGINEERS MISSISSIPPI RIVER</p>				
Designed by		MISSISSIPPI RIVER LOCK & DAM NO. 13		
Drawn by		PROPOSED REHABILITATION PLA		
Checked by				
Submitted by		Date		
Approved by		Date		
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SHOWN:

ACE LOCK MECHANICAL EQUIPMENT.

ACE LOCK ELECTRICAL EQUIPMENT.

HAUL AND PAINT LOCK TANTIER VALVES.

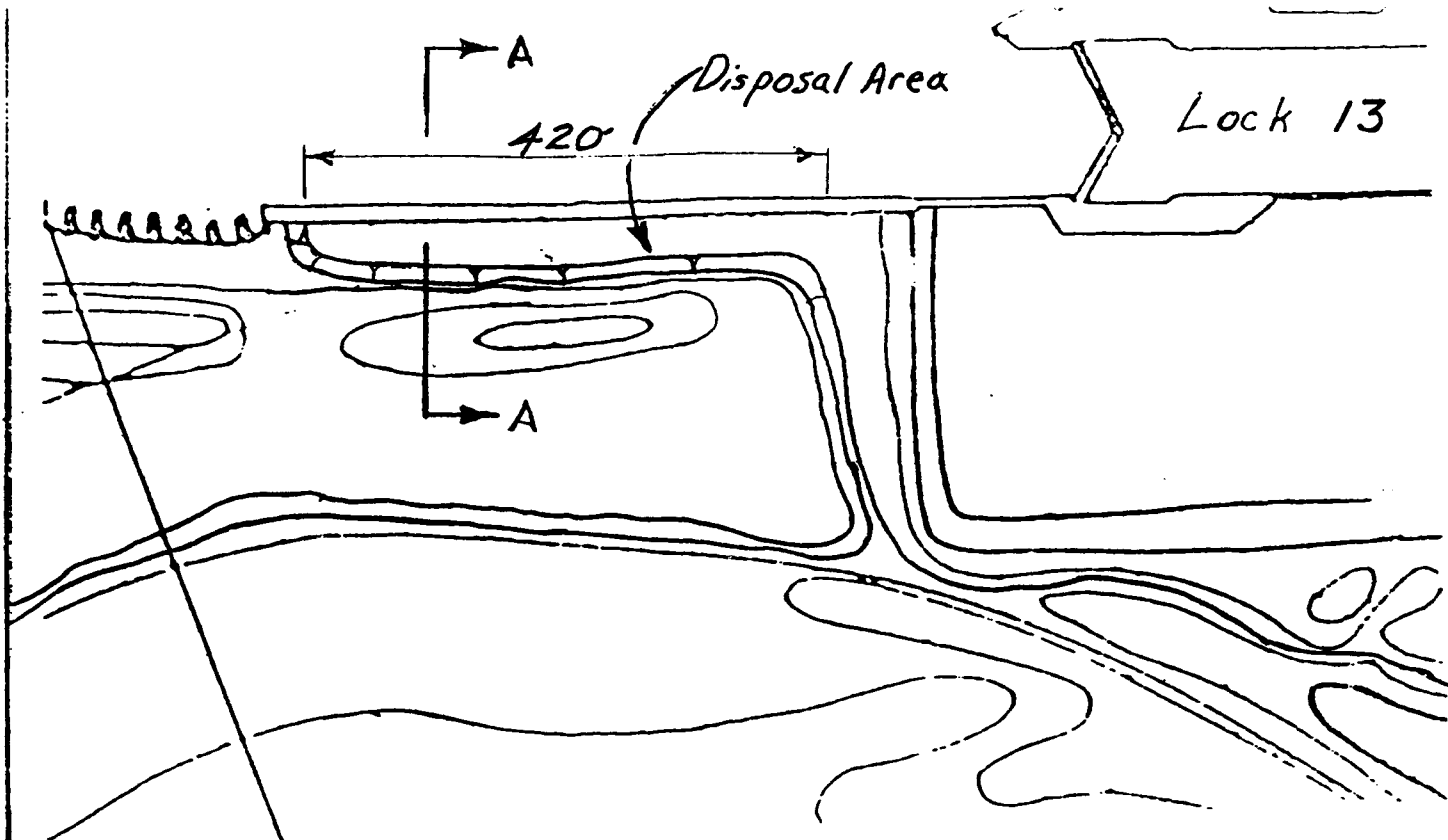
IR DAM BULKHEADS, SANDBLAST AND PAINT.

REPLACE SEALS.

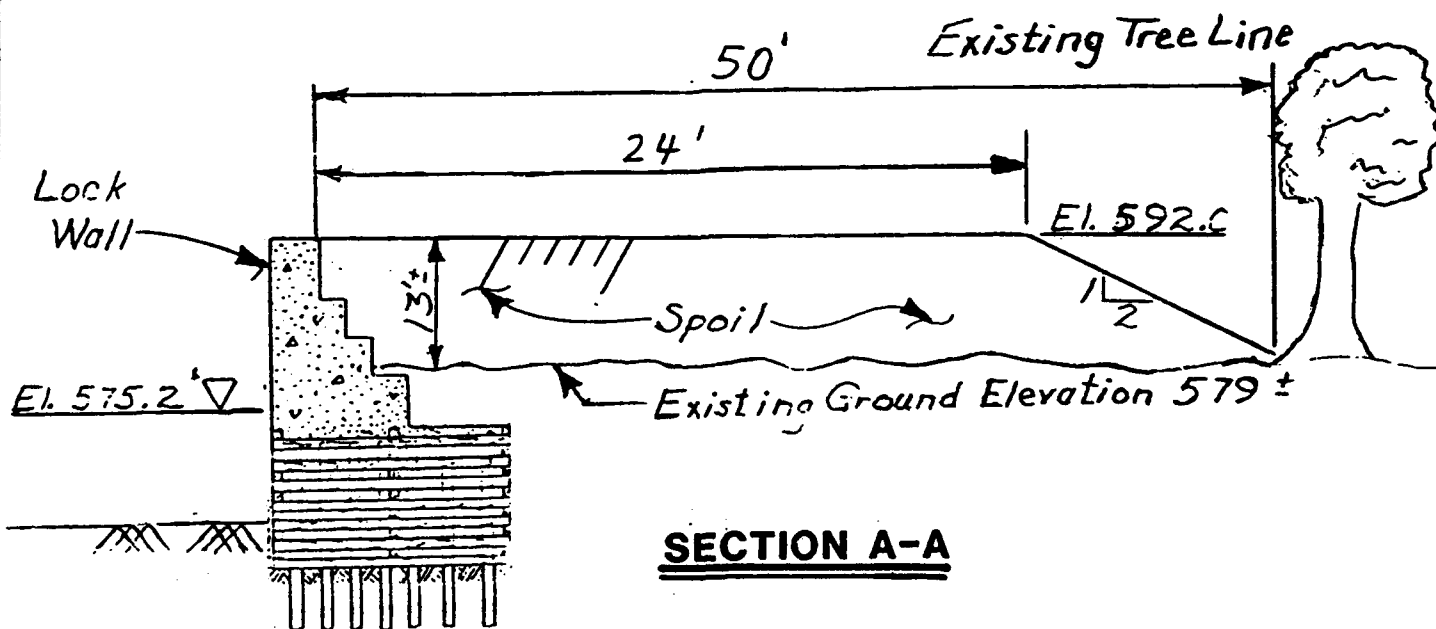
ILL BUBBLER SYSTEM IN LOCK.

ACE DETERIORATED GROUT AROUND TRUNNION BOXES

Symbol		Description of Symbols		Date	Approved
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Designed by	<p><b>MISSISSIPPI RIVER</b>  <b>LOCK &amp; DAM NO. 13</b></p>				
Drawn by	<p><b>PROPOSED</b></p>				
Checked by	<p><b>REHABILITATION PLAN</b></p>				
Authorized by	<p>_____  Date _____</p>				
Approved by	<p>_____  Date _____</p>				
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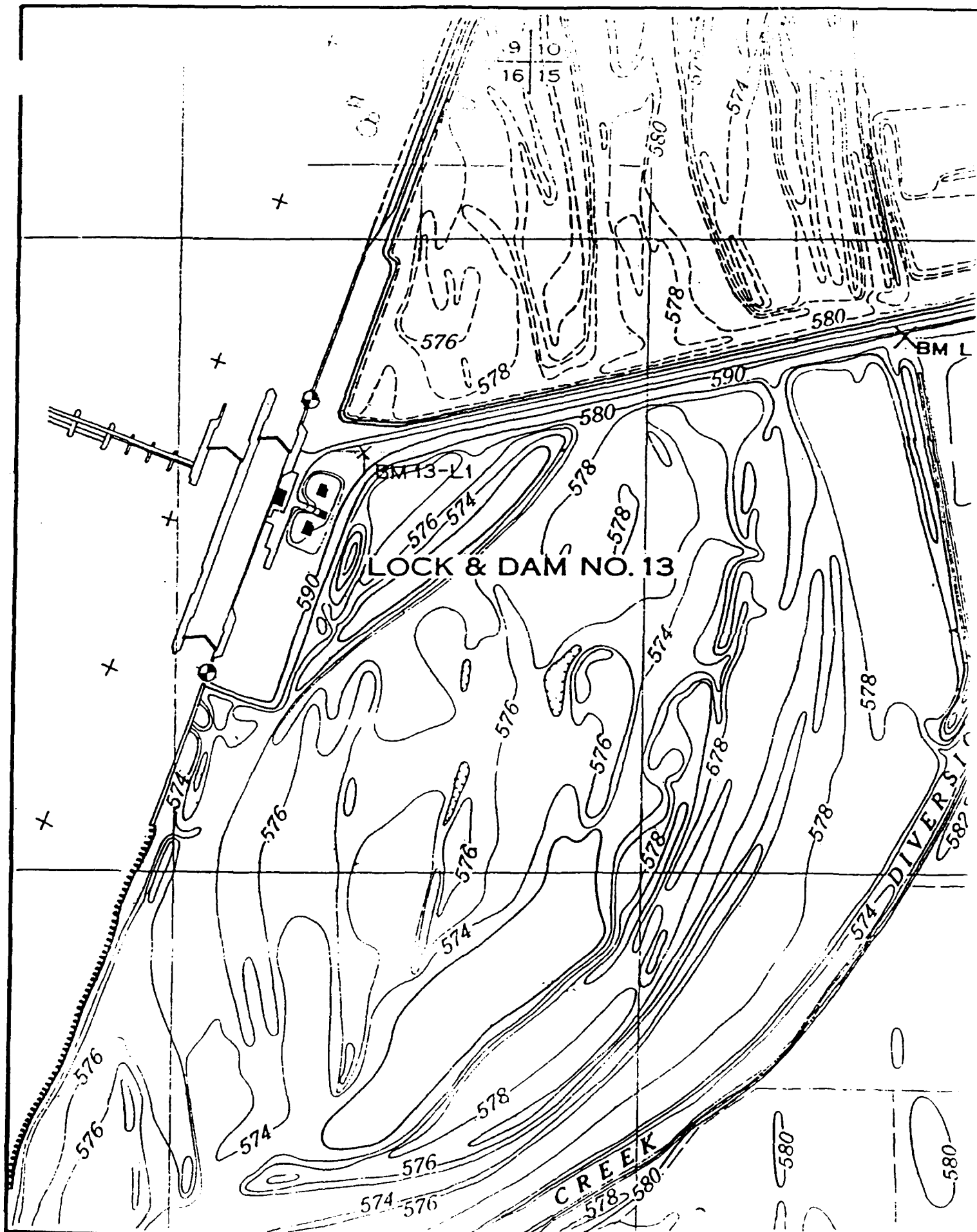
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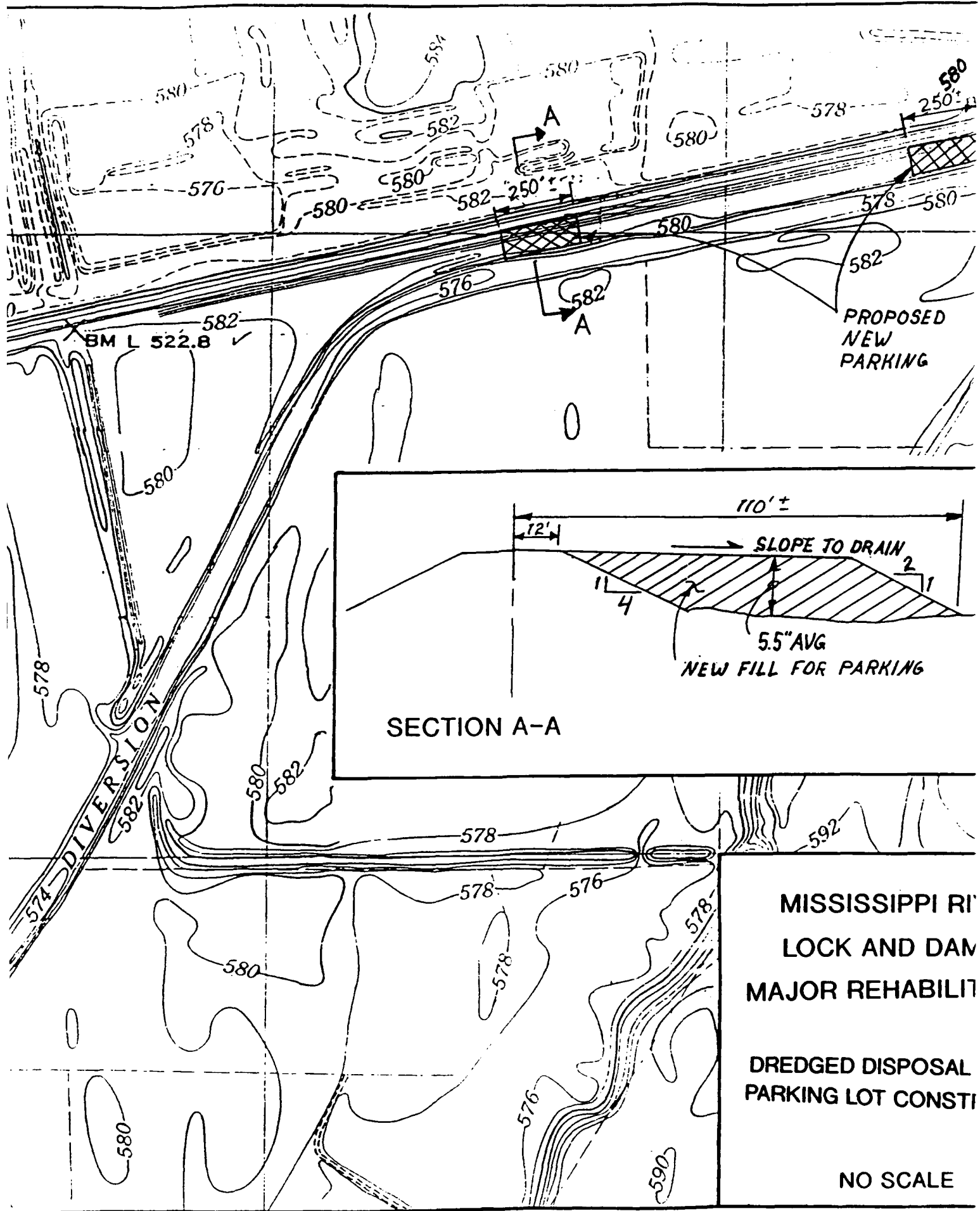
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LOCK AND DAM NO. 13  
MAJOR REHABILITATION**

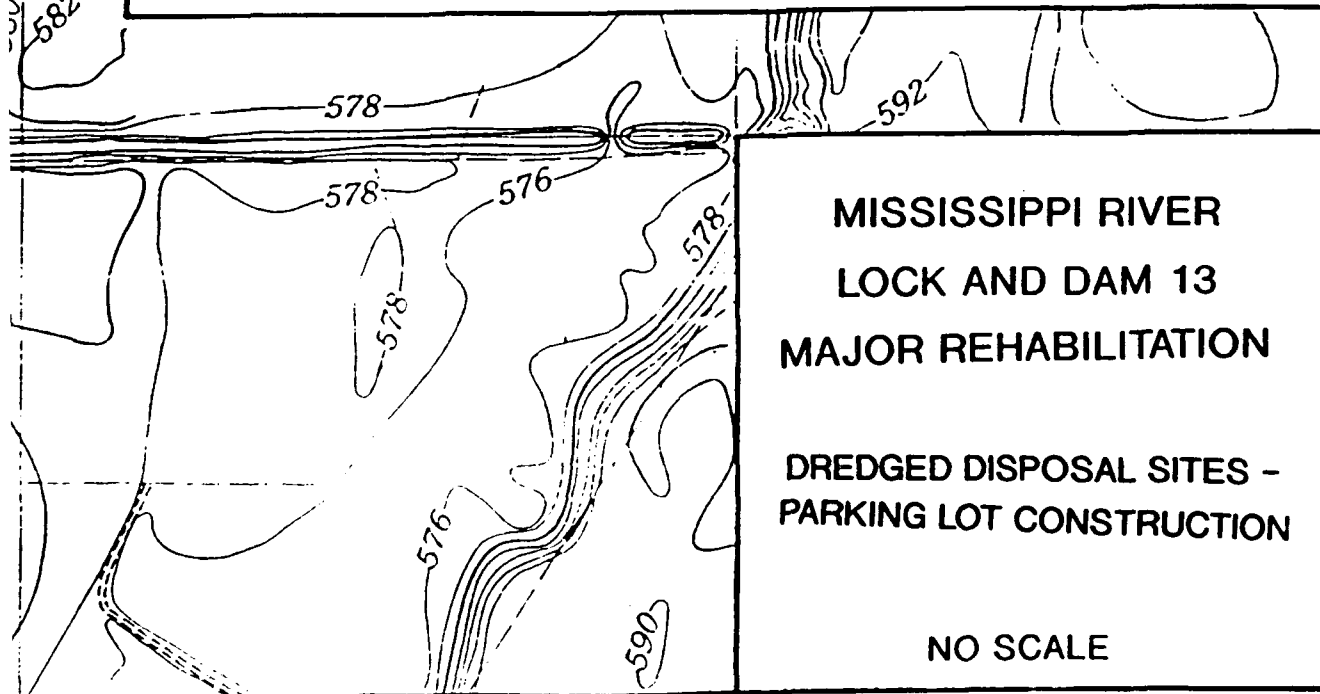
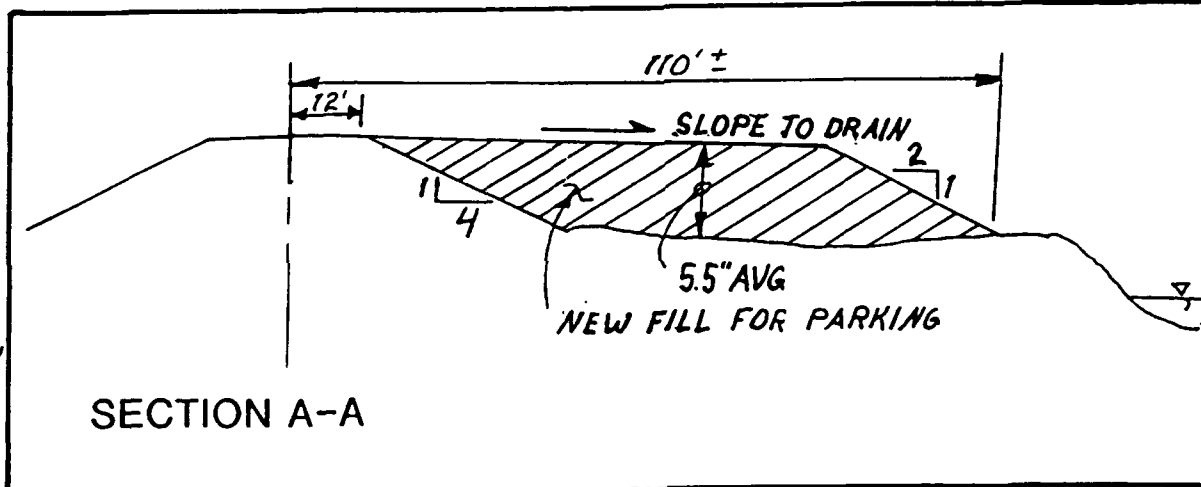
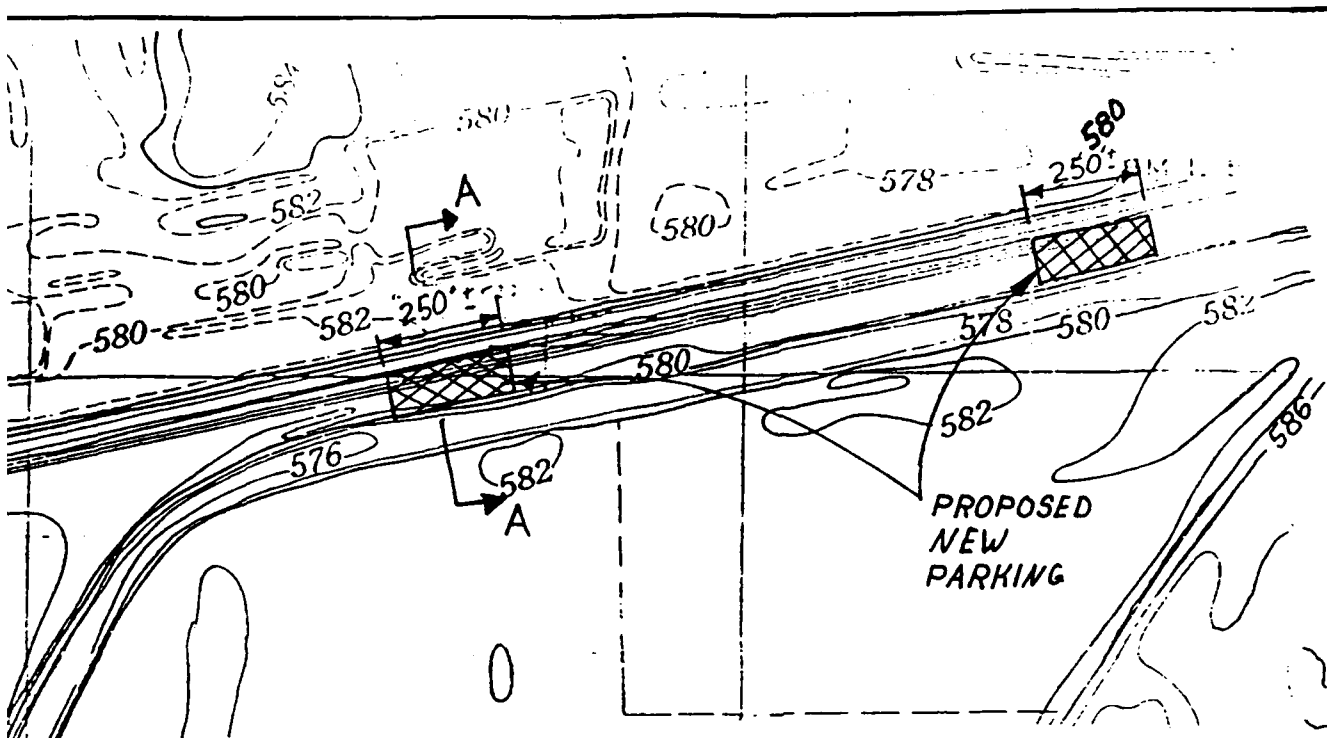
**DREDGED DISPOSAL SITE -  
LANDWARD OF THE LOWER  
GUIDEWALL**

*NO SCALE*



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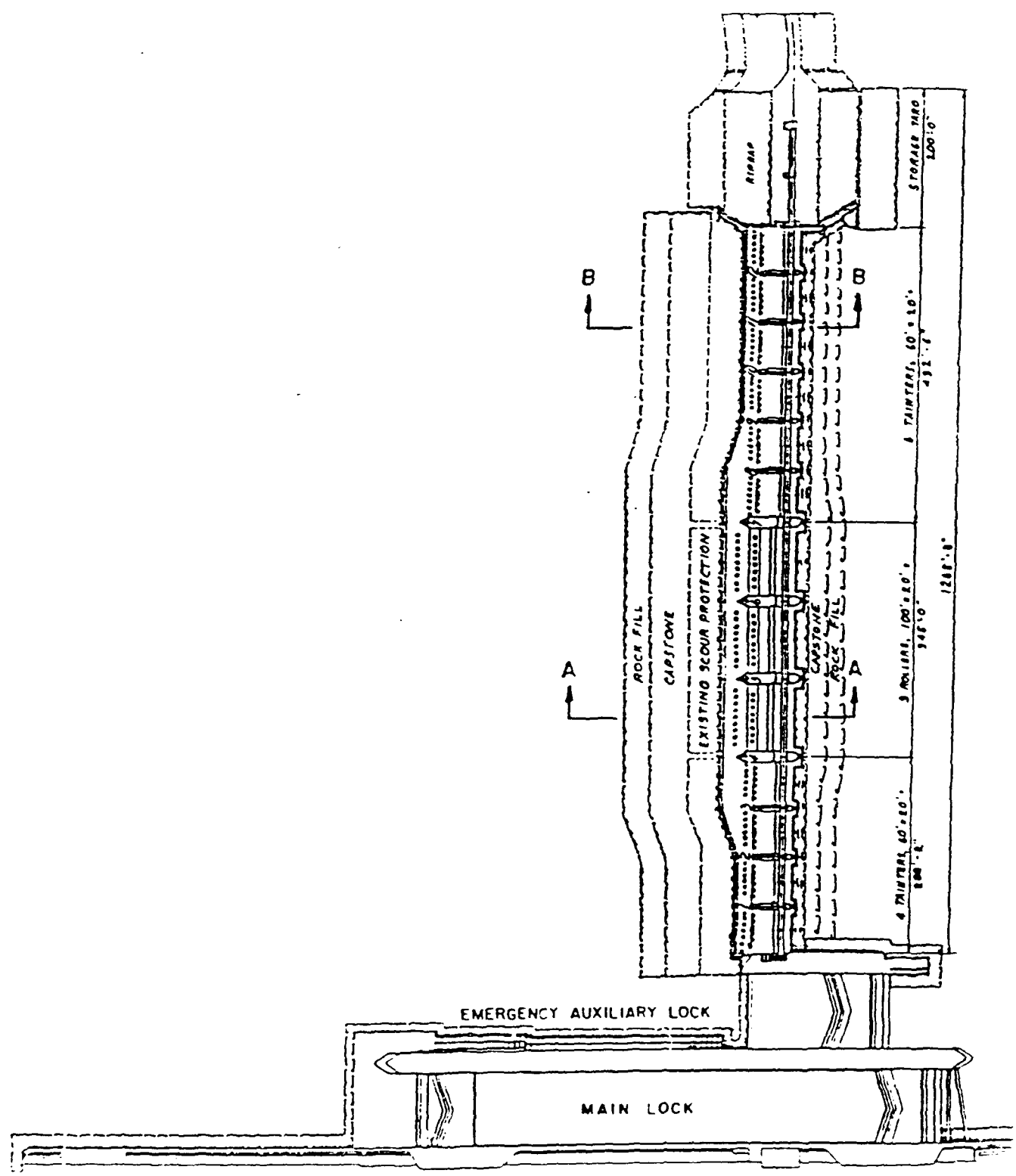
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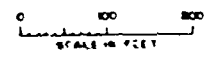
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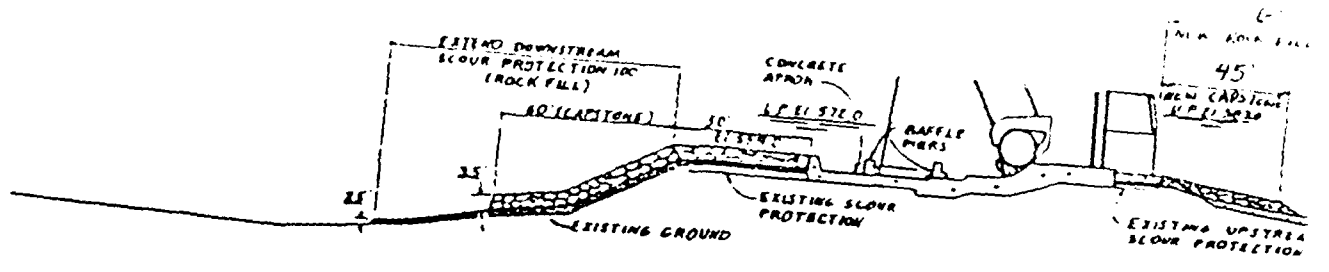
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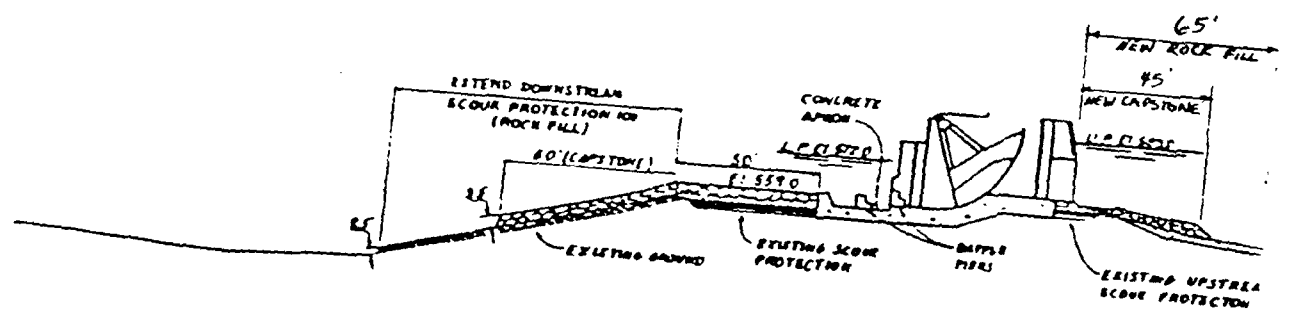
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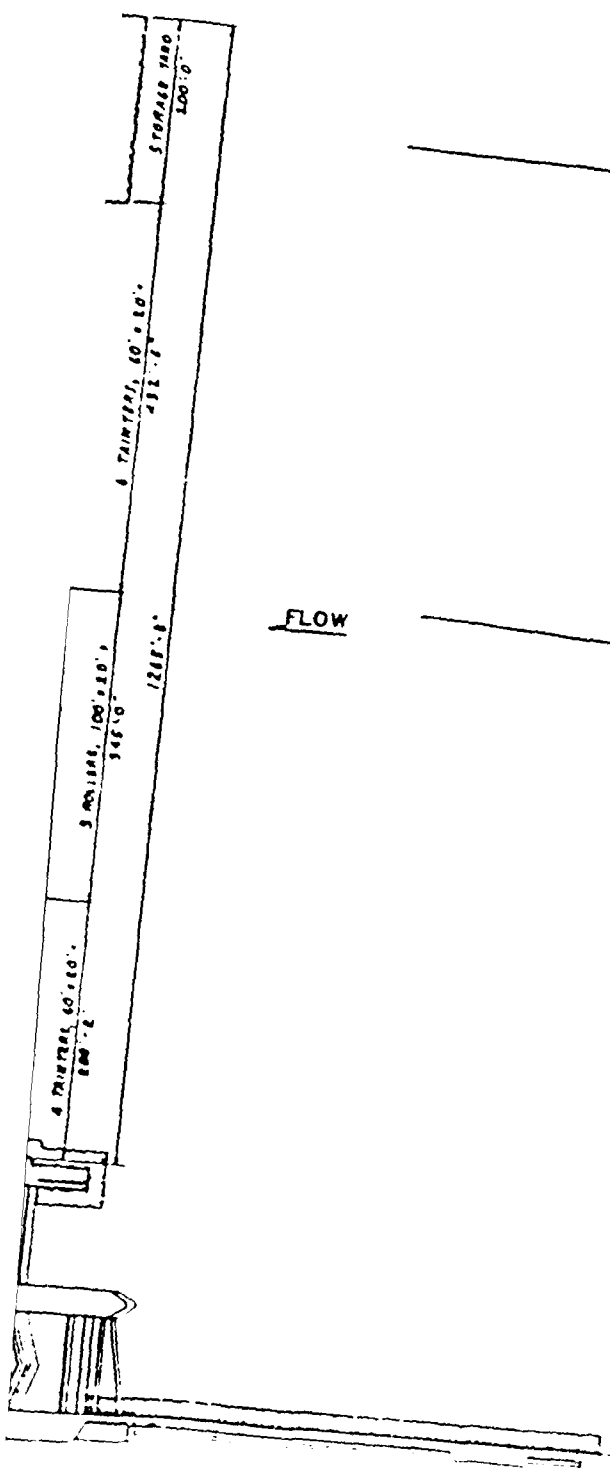
**SECTION A-A**  
**ROLLER GATE SILL AND APRON**



**SECTION B-B**  
**TANTER GATE SILL AND APRON**

0 10 20 30 40 50 60  
SCALE IN FEET

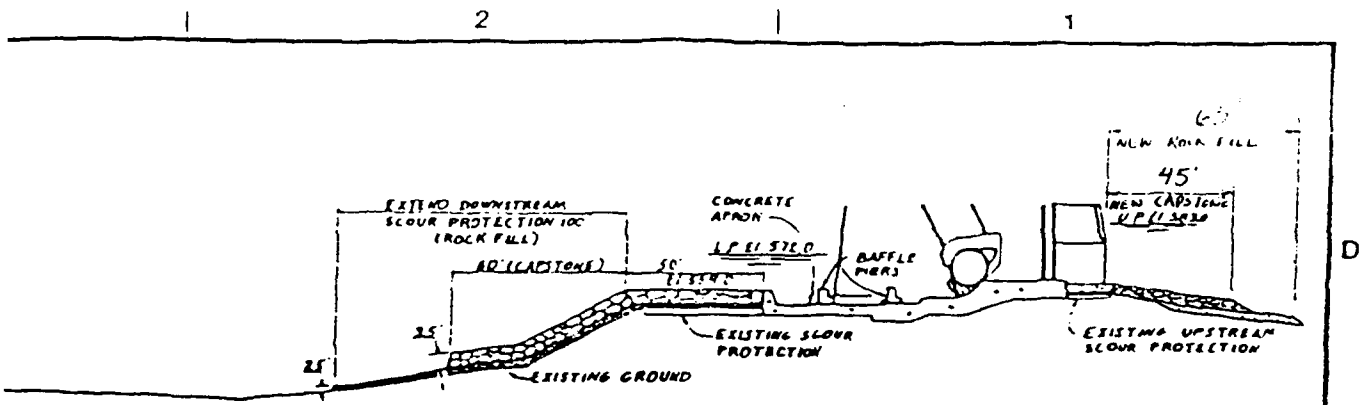
NOTE:  
ROCK FILLED TIMBER MATS WERE INSTALLED BELOW  
THE ROLLER AND TANTER GATES IN 1950'S



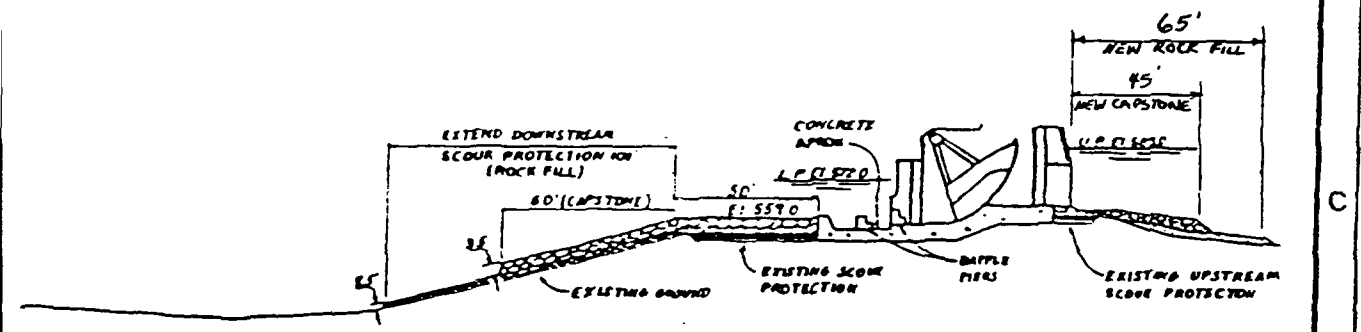
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SCOUR PROTECTION PLAN	
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PLATE EA-

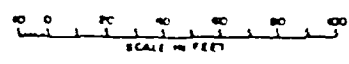
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**SECTION A-A**  
**ROLLER GATE SILL AND APRON**



**SECTION B-B**  
**TANTIER GATE SILL AND APRON**



NOTE:  
ROCK FILLED TIMBER MATS WERE INSTALLED BELOW  
THE ROLLER AND TANTIER GATES IN 1950'S

U. S. ARMY ENGINEER DISTRICT, ROCK ISLAND CORPS OF ENGINEERS MISSISSIPPI RIVER LOCK & DAM NO. 13	
<b>SCOUR PROTECTION PLAN</b>	
Prepared by Drawn by Checked by Substantiated by	Date Scale Sheet No. of _____

3

**APPENDIX A**  
**PERTINENT CORRESPONDENCE**



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
ROCK ISLAND DISTRICT CORPS OF ENGINEERS  
CLOCK TOWER BUILDING P.O. BOX 2004  
ROCK ISLAND ILLINOIS 61204 2004

8 April 1991

Planning Division

SEE DISTRIBUTION LIST

The Rock Island District of the U.S. Army Corps of Engineers (Corps), is currently finalizing plans for the major rehabilitation at Lock and Dam 13 of the Nine-Foot Navigation Project of the Mississippi River. Lock and Dam 13 is located at river mile 522.6, near Fulton, Illinois. Plate 1 is a site map of the area.

Completed in 1939, Lock and Dam 13 has surpassed the 50 year life span typically estimated for concrete structures of this type. Rehabilitation of the facility is needed to retain operating and performance characteristics similar to its original design. The proposed activity involves a variety of construction-type work such as concrete removal and replacement, steel work, sandblasting, painting, and mechanical and electrical equipment replacement (Plate 2).

Incidental actions to major rehabilitation are the dredging and placement of about 15,000 cubic yards of accreted sediments at Lock and Dam 13. The primary disposal placement for both sand and silt material is behind the lower guidewall (Plate 3). Once dredging and disposal is completed, the site will be planted with grass and trees, and used as a river and eagle viewing area. Scour protection upstream and downstream will total about 36,000 cubic yards of stone (Plate 4).

Environmental impacts are not anticipated to be significant. Impacts caused by maintenance work on the lock and dam should have little, if any, effect on wildlife. No discarded material or fill will be deposited into the river. An Environmental Assessment and Section 404(b)(1) Evaluation of the Clean Water Act are being prepared at this time, as described in paragraph 2.1 of the document, Final Programmatic Environmental Impact Statement, Major Rehabilitation Effort, Mississippi River Locks and Dams 2-22, March 1989.

We request your comments concerning this project. If comments are not received within 30 days of the date of this

letter, we will assume comments are not forthcoming. If you have any questions or request additional information, please call Mr. Joseph Jordan or Mr. Lonn McGuire of our Environmental Analysis Branch at 309/788-6361, Ext 6709, or you may write to the following address:

District Engineer  
U.S. Army Engineer District, Rock Island  
ATTN: Planning Division  
Clock Tower Building - P.O. Box 2004  
Rock Island, Illinois 61204-2004

Sincerely,

Dudley M. Hanson, P.E.  
Chief, Planning Division

Enclosures

DISTRIBUTION LIST

Mr. Larry Wilson  
Iowa Department of Natural Resources  
Wallace State Office Building  
Des Moines, Iowa 50319

ATTN: Darryl Hayes

Mr. Morris Kay  
U.S. Environmental Protection Agency  
726 Minnesota Avenue  
Kansas City, Kansas 66101

ATTN: Mr. Mike Bronowski

Mr. William Franz  
U.S. Environmental Protection Agency  
230 South Dearborn Street  
Chicago, Illinois 60604

ATTN: Al Fennedick

Mr. G. Brent Manning  
Illinois Department of Conservation  
Lincoln Tower Plaza  
524 South Second Street  
Springfield, Illinois 62701-1787

ATTN: Richard Lutz

U.S. Coast Guard  
1430 Olive Street  
St. Louis, Missouri 63103

Illinois Environmental Protection Agency  
2200 Churchill Road  
Springfield, Illinois 62794-9276

Illinois Department of Transportation  
Division of Water Resources  
2300 South Dirksen Parkway  
Springfield, Illinois 62764



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
ROCK ISLAND DISTRICT CORPS OF ENGINEERS  
CLOCK TOWER BUILDING - P.O. BOX 2004  
ROCK ISLAND, ILLINOIS 61204-2004

8 April 1991

Planning Division

Mr. Richard Nelson  
U.S. Fish and Wildlife Service  
1830 Second Avenue  
Rock Island, Illinois 61201

Dear Mr. Nelson:

The Rock Island District of the U.S. Army Corps of Engineers (Corps), is currently finalizing plans for the major rehabilitation at Lock and Dam 13 of the Nine-Foot Navigation Project of the Mississippi River. Lock and Dam 13 is located at river mile 522.6, near Fulton, Illinois. Plate 1 is a site map of the area.

Completed in 1939, Lock and Dam 13 has surpassed the 50 year life span typically estimated for concrete structures of this type. Rehabilitation of the facility is needed to retain operating and performance characteristics similar to its original design. The proposed activity involves a variety of construction-type work such as concrete removal and replacement, steel work, sandblasting, painting, and mechanical and electrical equipment replacement (Plate 2).

Incidental actions to major rehabilitation are the dredging and placement of about 15,000 cubic yards of accreted sediments at Lock and Dam 13. The primary disposal placement for both sand and silt material is behind the lower guidewall (Plate 3). Once dredging and disposal is completed, the site will be planted with grass and trees, and used as a river and eagle viewing area. Scour protection upstream and downstream will total about 36,000 cubic yards of stone (Plate 4).

Environmental impacts are not anticipated to be significant. Impacts caused by maintenance work on the lock and dam should have little, if any, effect on wildlife. No discarded material or fill will be deposited into the river. An Environmental Assessment and Section 404(b)(1) Evaluation of the Clean Water Act are being prepared at this time, as described in paragraph 2.1 of the document, Final Programmatic Environmental Impact Statement, Major Rehabilitation Effort, Mississippi River Locks and Dams 2-22, March 1989.

We request your comments concerning this project under authority of and in accordance with provisions of the Fish and Wildlife Coordination Act. We also request any information regarding the endangered species that may be

impacted by the project, according to Section 7 of the Endangered Species Act. If comments are not received within 30 days of the date of this letter, we will assume comments are not forthcoming. If you have any questions or request additional information, please call Mr. Joseph Jordan or Mr. Lonn McGuire of our Environmental Analysis Branch at 309/788-6361, Ext 6697, 6709, respectively, or you may write to the following address:

District Engineer  
U.S. Army Engineer District, Rock Island  
ATTN: Planning Division  
Clock Tower Building - P.O. Box 2004  
Rock Island, Illinois 61204-2004

Sincerely,

Dudley M. Hanson, P.E.  
Chief, Planning Division

Enclosures



CONVERSATION RECORD		TIME 1115	DATE 28 Apr 91
TYPE ( ) VISIT ( ) CONFERENCE (X) TELEPHONE		CF: -----	
		( ) INCOMING (X) OUTGOING	
NAME CONTACTED Dennis Luebbe	ORGANIZATION Il DOT	TELEPHONE 217-7823862	
-----			
SUBJECT: Lock and Dam 13 Rehab disposal site			

SUMMARY: Purpose of the call was twofold: 1. To clear up any confusion as to why the proposed disposal site was chosen. It was primarily chosen for use as a disposal site, not for development as a eagle and river viewing area as is suggested in his correspondence letter of 29 April 91. He said he understood that and informed me that planting the site with trees and grasses and picnic tables would help (in their eyes) lessen the environmental impacts.

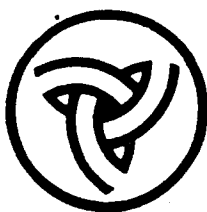
2. To comply with DOT request for more information. (A.) A Plate/diagram showing detailed plans, profiles, and cross sections with volumetric calculations of the proposed disposal site.

(B.) A narrative of the disposal site. Mr. Luebbe wanted to make sure COE has given consideration to out of floodway disposal. I told him it was considered but was rejected because of cost.

ACTION REQUIRED: Mail Mr. Luebbe a copy of the plate showing details of the disposal site.

NAME OF PERSON DOCUMENTING CONVERSATION Lonn McGuire	SIGNATURE	DATE 28 Apr 91
=====		
ACTION TAKEN Mailed Mr. Luebbe plate of disposal site.		

SIGNATURE <i>Lonn McGuire</i>	TITLE Gen. Biologist	DATE 28 Apr 91
50271-101	CONVERSATION RECORD	(12-76)



# Illinois Department of Transportation

Division of Water Resources  
3215 Executive Park Drive / P.O. Box 19484 / Springfield, Illinois / 62794-9484

April 29, 1991

SUBJECT: Lock and Dam 13 Rehabilitation  
Mississippi River  
Whiteside County

District Engineer  
U.S. Army Engineer District, Rock Island  
Planning Division  
Clock Tower Building  
P. O. Box 2004  
Rock Island, Illinois 61204-2004

Attention: Mr. Lonn McGuire, Environmental Analysis Branch

Gentlemen:

We are in receipt of the Rock Island District Corps of Engineers' letter dated April 12, 1991 concerning the subject project. After a preliminary review, it has been determined that additional information will be required.

Per current Division policy, permits are not required for the routine maintenance and repair of existing structures. However, the proposal to place dredged material within the 100-year floodway for use as a river and eagle viewing area along the lower guidewall is not considered to be included with maintenance and repair work. In addition, the dredged material apparently is apparently not covered by Illinois Department of Transportation, Division of Water Resources Permit No. 17603 issued to the Corps (copy enclosed). Accordingly, this part of the project will require a permit.

For the dredged fill to be permissible, the Division must determine that the viewing area is designed to minimize its obstruction to flood flows. To continue our review of this proposal, the following is required:

1. Engineering plans and profiles of the existing and proposed grades of the disposal site;
2. Cross sections of the proposed fill with volumetric calculations; and
3. A narrative of the proposal to place fill within the floodway.

If you have any questions or comments, contact Dennis Luebke of my staff at 217/782-3862.

Sincerely,

Dennis L. Kennedy, P.E., Head  
Technical Analysis and Permit Unit

DLK:DML:pw/2351R  
Enclosures

A-7

M525

CARROLL COUNTY  
WHITESIDE COUNTY

T. 22 N.

M524

STATE BOUNDARY

M523

Lock and Dam No 13

SPASAL  
T.E.

IOWA

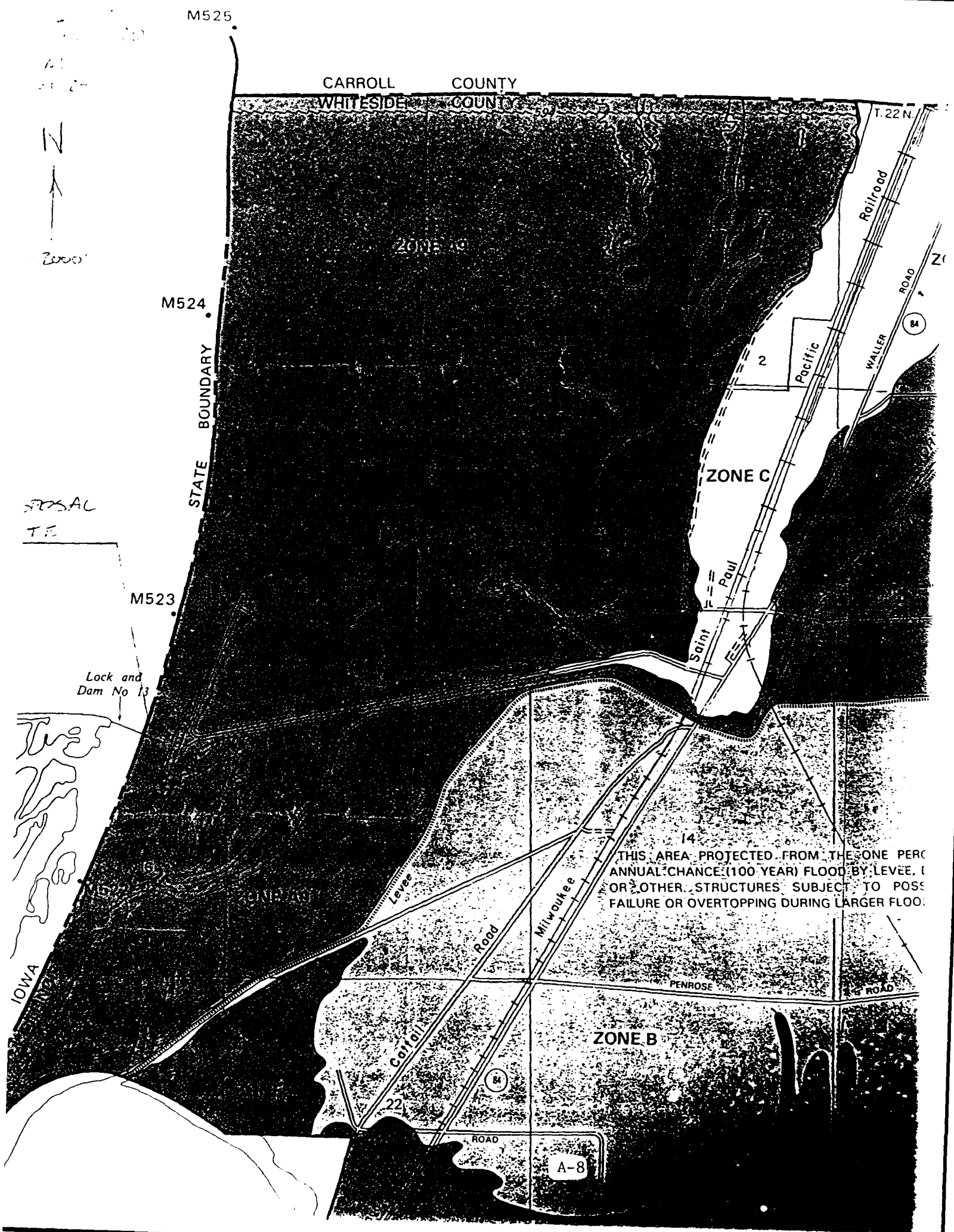
ZONE A

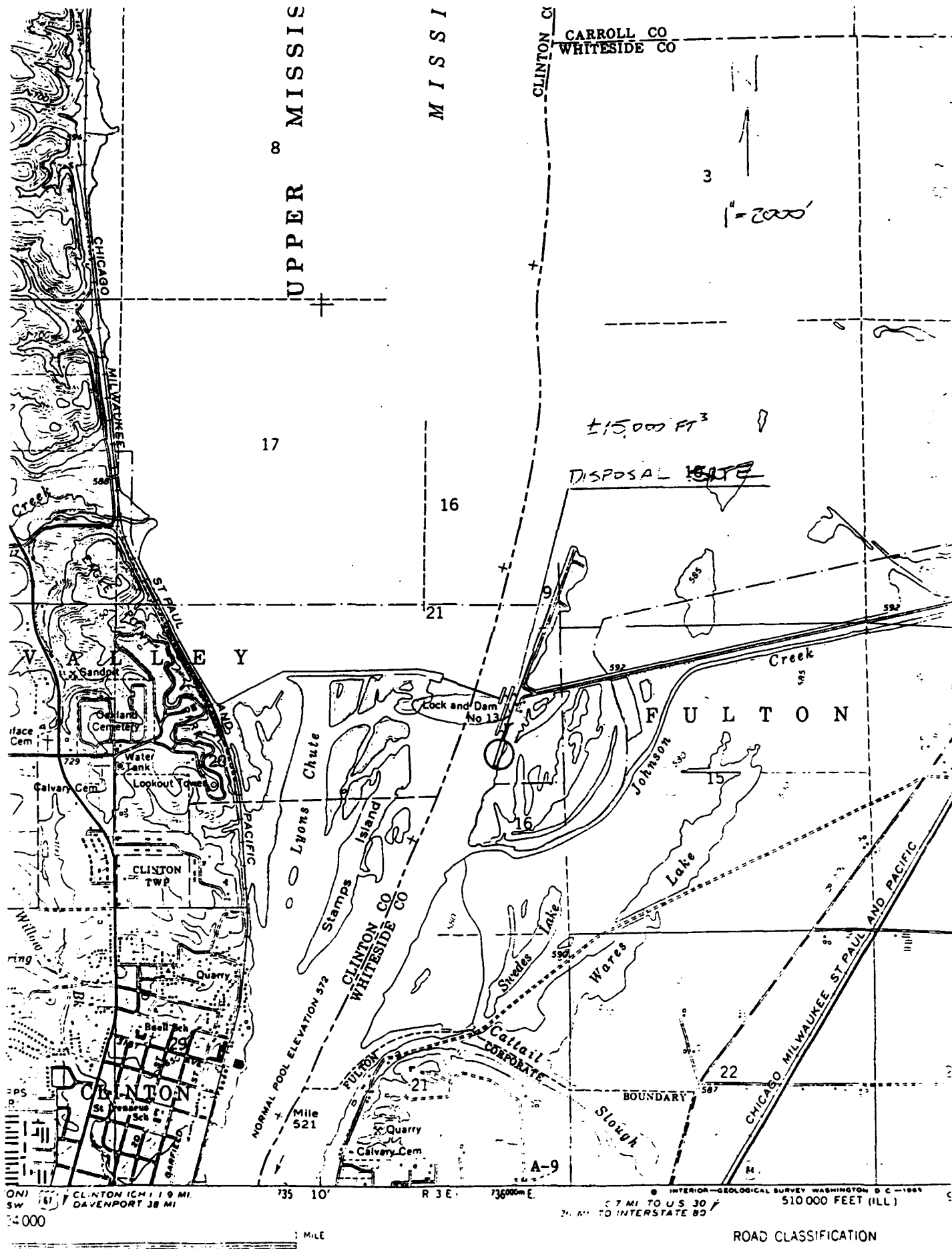
ZONE C

ZONE B

THIS AREA PROTECTED FROM THE ONE PERCENT ANNUAL CHANCE (100 YEAR) FLOOD BY LEVEE, OR OTHER STRUCTURES SUBJECT TO POSSIBLE FAILURE OR OVERTOPPING DURING LARGER FLOOD.

A-8





ILLINOIS DEPARTMENT OF TRANSPORTATION  
DIVISION OF WATER RESOURCES  
2300 SOUTH DIRKSEN PARKWAY  
SPRINGFIELD, ILLINOIS 62764

17603

Permission is hereby granted to the U. S. Army Corps of Engineers to perform maintenance dredging and dredge material disposal operations in accordance with the special and general conditions specified below on the following Illinois rivers:

1. Mississippi River in its entirety within Illinois;
2. Illinois River from its mouth to Mile 244.7;
3. Kaskaskia River from its mouth to Mile 36.2;
4. Ohio River in its entirety within Illinois.

SPECIAL CONDITIONS

1. Dredge material shall not be placed in:
  - a. Any shallow or shorewater predominately occupied by submerged or floating aquatic vegetation, or
  - b. Any backwater, slough, back channel, oxbow, or bay, or
  - c. Any area within the depositional influence of a dike, sill, breakwater or other structure where subsequent sediment transport is largely arrested, or
  - d. Any area where sediment tends to accumulate or from which sediment may migrate into a backwater, or
  - e. Any floodway land of the river to be dredged or in the floodway of any tributaries thereto except for:
    - i. Nourishment of existing beach areas, or
    - ii. Reinforcement, stabilization or repair of any existing levee, or
    - iii. Bank and shoreline stabilization, or
    - iv. Temporary stockpiling of dredge material for beneficial use at sites reviewed and approved by the Department of Transportation. (Such approval may be granted without public notice.)

2. This permit does not authorize, the dredging or disposal of any material which does not conform to the requirements of the Illinois Environmental Protection Agency for Section 401 Water Quality Certification.
3. Each Corps District shall provide the Department with a tentative schedule of dredging prior to each dredging season including specific sites to be dredged and the estimated quantities to be dredged.
4. Notice shall be provided to the Department at least seven days in advance of the initiation of dredging at each specific site.
5. This permit does not authorize the disposal of dredged material in an Important Resource Area which has been designated as such by the Illinois Department of Conservation unless the site and method of disposal have been approved by an on-site inspection team composed of representatives of the Illinois Department of Transportation, the Illinois Department of Conservation and the Illinois Environmental Protection Agency.

#### GENERAL CONDITIONS

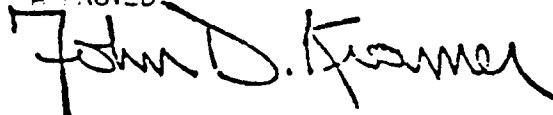
1. This permit is granted in accordance with an act entitled, "AN ACT in relation to the regulation of the rivers, lakes and streams of the State of Illinois," approved June 10, 1911, as amended. (Illinois Revised Statutes, Chapter 19, paragraphs 52 et seq.)
2. This permit does not convey title to the permittee or recognize title of the permittee to any submerged or other lands, and furthermore, does not convey, lease or provide any right or rights of occupancy or use of the public or private property on which the project or any part thereof will be located, or otherwise grant to the permittee any right or interest in or to the property, whether the property is owned or possessed by the State of Illinois or by any private or public party or parties.
3. This permit does not release the permittee from liability for damage to persons or property resulting from the work covered by the permit, and does not authorize any injury to private property or invasion of private rights.
4. This permit does not relieve the permittee of the responsibility to obtain other federal, state or local authorizations required for the construction of the permitted

activity; and if the permittee is required by law to obtain approval from any federal agency to do the work, the authorization is not effective until the federal approval is obtained.

5. The execution and details of the work authorized shall be subject to the supervision and approval of the Department. Department personnel shall have right of access to accomplish this purpose.
6. Noncompliance with the conditions of this permit will be considered grounds for revocation.
7. This permit shall remain in effect until such time as it is modified, suspended, or revoked by the Department of Transportation.

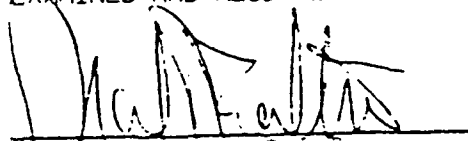
This permit is effective this 29th day of April, 1983.

APPROVED:



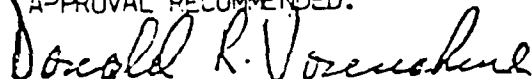
John D. Kramer, Secretary

EXAMINED AND RECOMMENDED:



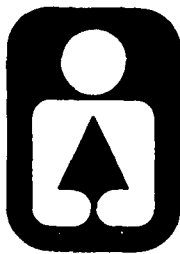
Neil R. Fulton, Chief  
Bureau of Resource Management

APPROVAL RECOMMENDED:



Donald R. Vonnahme, Director  
Division of Water Resources

Illinois



Department of Conservation

life and land together

LINCOLN TOWER PLAZA • 524 SOUTH SECOND STREET • SPRINGFIELD 62701-1787  
CHICAGO OFFICE • ROOM 4-300 • 100 WEST RANDOLPH 60601

BRENT MANNING, DIRECTOR

May 15, 1991

Mr. Dudley M. Hanson, P.E.  
Chief Planning Division  
U.S. Army Engineer District, Rock Island  
Clock Tower Building  
P.O. Box 2004  
Rock Island, IL 61024-2004

Dear Mr. Hanson:

Thank you for your April 12, 1991 letter concerning finalization of your plans for the major rehabilitation at Lock and Dam 13, Mississippi River near Fulton, Illinois.

Based on the information currently available we concur that the proposed maintenance work on the dam should have little, if any effect on wildlife. Our final judgement will be made after we have had the opportunity to review the environmental assessment and Section 404 b(1) evaluation you are currently preparing.

Thank you for the opportunity to comment.

Sincerely,

*Brent Manning*  
Brent Manning  
Director

BM:RWL:ts

cc: USFWS, Rock Island



CONVERSATION RECORD		TIME 1305	DATE 20 May 91
TYPE ( ) VISIT ( ) CONFERENCE (X) TELEPHONE		CF: -----	
		( ) INCOMING (X) OUTGOING	
NAME CONTACTED Chuck Davis	ORGANIZATION USFWS	TELEPHONE 7935800	

SUBJECT: L/D 13 & 15 Major Rehab response

**SUMMARY:**

Mr. Davis conveyed his belief that FWS has no objections to projects but would call back if any arose.

ACTION REQUIRED: COE will procede as if FWS has no objections.

NAME OF PERSON DOCUMENTING CONVERSATION Lonn McGuire	SIGNATURE <i>Lonn I. McGuire</i>	DATE 21 May 91
------------------------------------------------------------	-------------------------------------	-------------------

ACTION TAKEN

SIGNATURE	TITLE	DATE
50271-101	CONVERSATION RECORD	(12-76)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

230 SOUTH DEARBORN ST.

CHICAGO, ILLINOIS 60604

REPLY TO THE ATTENTION OF

MAY 21 1991

SME-16JCK

Colonel John R. Brown  
District Engineer  
U.S. Army Corps of Engineers  
ATTN: Planning Division  
Clock Tower Building - P.O. Box 2004  
Rock Island, Illinois 61204-2004

Dear Colonel Brown:

In accordance with the National Environmental Policy Act and Section 309 of the Clean Air Act, we have reviewed the plans for the major rehabilitation of Lock and Dam 13 on the Mississippi River at Fulton, Illinois. Lock and Dam 13 has surpassed its 50-year lifespan, and is in need of rehabilitation. Proposed activity includes concrete removal and replacement, steelwork, sandblasting, painting, mechanical and electrical equipment replacement, and dredging and placement of accumulated sediments at Lock and Dam 13.

Based on our review of the rehabilitation plans, we have concerns with the dredging and placement of sediments. According to the plan, about 15,000 cubic yards of material will be dredged and placed at a disposal site. Sediments that are to be dredged should be tested for chemical contamination. Three core samples should be taken at the dredging site. Core depth should extend two feet below project depth to characterize material in the event of over-dredging and to characterize the material exposed by the dredging event. Each core sample should be divided into three foot sections, from bottom to top, with each subsample undergoing analysis for the following constituents:


Ammonia	Metals
Grain Size	-Arsenic
Density	-Cadmium
Percent Moisture	-Chromium
Total Organic Carbon	-Copper
Total Volatile Solids	-Lead
Total Phosphate	-Mercury
Total Kjeldahl Nitrogen	-Nickel
Total Petroleum Hydrocarbons	-Zinc
PCBs	

The results of the sample tests should be made available to our Agency for review in the environmental assessment.

The environmental assessment should assess impacts associated with the proposed disposal site for the dredged material. These impacts may include filling wetlands if the site contains wetlands, or clearing woodlands for the site. Mitigation for impacts should also be discussed.

Thank you for the opportunity to review the major rehabilitation of Lock and Dam 13. If you have any question regarding our comments, please contact Milo Anderson of my staff at (312) 886-2967.

Sincerely yours,

A handwritten signature in dark ink, appearing to read 'Tom Jackson', with a stylized flourish at the end.

Thomas L. Jackson, Chief  
Environmental Review Branch

CONVERSATION RECORD		TIME 11:00	DATE 22 May 91
TYPE ( ) VISIT ( ) CONFERENCE (X) TELEPHONE		(X) INCOMING ( ) OUTGOING	CF: -----
NAME CONTACTED Scott Ogan	ORGANIZATION U.S. Coast Guard	TELEPHONE (314) 539-3714	

**SUBJECT:**

Lock and Dam 13 Major Rehabilitation Evaluation Report

**SUMMARY:**

1. I called Mr. Ogan for his comments regarding the Corps letter, dated 12 April 1991.
2. Mr. Ogan stated he had no objections to the proposed work items.

**ACTION REQUIRED:**

NAME OF PERSON DOCUMENTING CONVERSATION Joe W. Jordan	SIGNATURE 	DATE May 22, 1991
-------------------------------------------------------------	--------------------------------------------------------------------------------------------------	----------------------

ACTION TAKEN

SIGNATURE	TITLE	DATE
50271-101	CONVERSATION RECORD	(12-76)



**Illinois Historic  
Preservation Agency**

Old State Capitol • Springfield, Illinois 62701 • (217) 782-4836

---

Whiteside County  
Fulton

Rehabilitation Mississippi River  
Lock & Dam 13  
IHPA Log #07052291

May 22, 1991

District Engineer  
U.S Army Engineer District, Rock Island  
ATTN: Planning Division  
Clock Tower Building - P.O. Box 2004  
Rock Island Illinois 61204-2004

To Whom It May Concern:

We have reviewed the referenced project.

In our opinion, the project as proposed will have no effect on Lock and Dam 13, which is eligible for listing on the National Register of Historic Places. We, therefore, have no objection to the undertaking proceeding as planned.

A copy of this letter should be kept on file as evidence of compliance with Section 106 of the National Historic Preservation Act of 1966, as amended.

If you have any questions, please contact Mr. William J. Callahan, Cultural Resources Assistant, Old State Capitol, Springfield, Illinois 62701, 217/785-4512.

Sincerely,

Theodore W. Hild  
Deputy State Historic  
Preservation Officer

TWH:WJC:kh

CONVERSATION RECORD		TIME 2:40	DATE 28 May 91
TYPE ( ) VISIT ( ) CONFERENCE (X) TELEPHONE		CF: -----	
		(X) INCOMING ( ) OUTGOING	
NAME CONTACTED Mike Anderson	ORGANIZATION USEPA, Reg 5	TELEPHONE (312) 886-2967	

SUBJECT:  
Lock and Dam 13 Major Rehabilitation Evaluation Report

SUMMARY:

1. We called Mr. Anderson to get his opinion on mitigation for impacts caused by dredge placement.
2. Mr. Anderson said forested wetland compensation should be mitigated at a 3:1 ratio. This is the most desirable option.
3. I said the Corps has no mitigation site proposed now, but we will be contacting the project engineer to establish such a site.

ACTION REQUIRED:

NAME OF PERSON DOCUMENTING CONVERSATION Joseph W. Jordan	SIGNATURE 	DATE 30 May 1991
----------------------------------------------------------------	---------------------------------------------------------------------------------------------------	---------------------

ACTION TAKEN

SIGNATURE	TITLE	DATE
50271-101	CONVERSATION RECORD	(12-76)

CONVERSATION RECORD		TIME 11:00	DATE 29 May 91
TYPE ( ) VISIT ( ) CONFERENCE (X) TELEPHONE			CF: -----
			(X) INCOMING
			( ) OUTGOING
NAME CONTACTED Darryl Hayes	ORGANIZATION IA DNR	TELEPHONE (515) 281-8675	

SUBJECT:

Lock and Dam 13 Major Rehabilitation Evaluation Report

SUMMARY:

1. Mr. Hayes was calling to convey the IA DNR's response to the Corps 12 April 1991, SAB.

2. He indicated the DNR had no comments concerning the project because most of the work will take place in Illinois.

ACTION REQUIRED:

NAME OF PERSON DOCUMENTING CONVERSATION Joseph W. Jordan	SIGNATURE 	DATE 29 May 1991
ACTION TAKEN		

SIGNATURE	TITLE	DATE
50271-101	CONVERSATION RECORD	(12-76)

CONVERSATION RECORD		TIME 2:30	DATE 30 May 91
TYPE ( ) VISIT ( ) CONFERENCE (X) TELEPHONE		CF: -----	
		(X) INCOMING	
		( ) OUTGOING	
NAME CONTACTED Bruce Yurdin	ORGANIZATION IL EPA	TELEPHONE (217) 782-1696	

SUBJECT:  
Lock and Dam 13 Major Rehabilitation Evaluation Report

SUMMARY:

1. I called Mr. Yurdin to inquire if the IL EPA had any comments regarding the above project.
2. He said the IL EPA does not have any comments at this time, but will comment once he reviews the 401 water quality certification application.

ACTION REQUIRED:

NAME OF PERSON DOCUMENTING CONVERSATION Joseph W. Jordan	SIGNATURE 	DATE 30 May 1991
----------------------------------------------------------------	---------------------------------------------------------------------------------------------------	---------------------

ACTION TAKEN

SIGNATURE	TITLE	DATE
50271-101	CONVERSATION RECORD	(12-76)



CONVERSATION RECORD		TIME 1:30 p.m.	DATE 11 June 1991
TYPE ( ) VISIT ( ) CONFERENCE (X) TELEPHONE ( ) INCOMING (X) OUTGOING			CF: _____
NAME CONTACTED Milo Anderson	ORGANIZATION USEPA, Reg 5	TELEPHONE 312/886-2967	

SUBJECT: Lock and Dam 13 Major Rehabilitation

SUMMARY:

1. I called Mr. Anderson to explain what the Corps was going to do to avoid impacting the forested wetland adjacent to the lower guidewall. Originally, this site was the only disposal site for both fine and coarse material. The site would have impacted approximately 1/2 acre of forested wetland. The Corps is now proposing to use the coarse material for construction of small parking lots adjacent to the entrance road which is situated on top of a dike. Only the fine material will be placed behind the lower guidewall. Under the new proposal, no forested wetland will be impacted.
2. Mr. Anderson stated that the new proposal avoids and minimizes impacts and no mitigation is required. He supports this proposal.

ACTION REQUIRED:

NAME OF PERSON DOCUMENTING CONVERSATION Joseph W. Jordan	SIGNATURE 	DATE 11 June 91
----------------------------------------------------------------	---------------------------------------------------------------------------------------------------	--------------------

ACTION TAKEN

SIGNATURE	TITLE	DATE
50271-101	CONVERSATION RECORD	(12-76)

CONVERSATION RECORD		TIME 9:45 am	DATE 13 June 1991
TYPE ( ) VISIT ( ) CONFERENCE (x) TELEPHONE		CF: -----	
		(x) INCOMING	
		( ) OUTGOING	
NAME CONTACTED Mr. Williams J. Callahan	ORGANIZATION IL Historic Pres. Agency	TELEPHONE (217) 785-4512	

SUBJECT: (Returned my call of June 12, 1991) Construction of Parking Lots on Levee Out of Dredged Material

SUMMARY:

The Ill. Historic Preservation Agency was contacted to explain that the Lock and Dam 13 rehabilitation had been modified to include construction and enlargement of parking lots using excess dredged material. I stated that the parking lot dredged material placement and construction would be confined to previously disturbed ground, encompassed by the existing levee system bounded by Johnson Creek Drainage Ditch. Mr. Callahan agreed with the Corps determination that no significant historic properties would be affected and that the proposed parking lot construction and expansion by using dredge material is appropriate.

ACTION REQUIRED: Include In NEPA document

NAME OF PERSON DOCUMENTING CONVERSATION Ron Deiss	SIGNATURE 	DATE 14 June 1991
---------------------------------------------------------	--------------------------------------------------------------------------------------------------	----------------------

ACTION TAKEN

SIGNATURE	TITLE	DATE
50271-101	CONVERSATION RECORD	(12-76)



## United States Department of the Interior

Fish and Wildlife Service  
Rock Island Field Office (ES)  
1830 Second Avenue, Second Floor  
Rock Island, Illinois 61201

TAKE  
PRIDE IN  
AMERICA

In Reply Refer to:

COM: 309/793-5800  
FTS: 782-5800

August 7, 1991

Colonel John R. Brown  
District Engineer  
U.S. Army Engineer District  
Rock Island  
Clock Tower Building, P.O. Box 2004  
Rock Island, Illinois 61204-2004

Dear Colonel Brown:

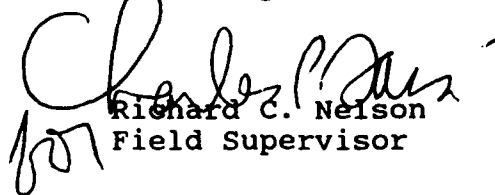
This letter provides our comments regarding the major rehabilitation at Lock and Dam 13 near Fulton, Illinois. Approximately 15,000 cubic yards of accreted sediments will be dredged and placed behind the lower guidewall, and along the south side of the entry road.

The proposed work will have no impact on federally listed threatened or endangered species, or their habitats.

This precludes the need for further action on this project as required under Section 7 of the Endangered Species Act of 1973, as amended. Should this project be modified or new information indicate endangered species may be affected, consultation should be initiated.

This letter provides comments under the authority of and in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.); and the Endangered Species Act of 1973, as amended.

Sincerely,

  
Richard C. Nelson  
Field Supervisor

CD:sjg



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
ROCK ISLAND DISTRICT, CORPS OF ENGINEERS  
CLOCK TOWER BUILDING-P.O. BOX 2004  
ROCK ISLAND, ILLINOIS 61204-2004

August 13, 1991

RECEIVED

AUG 20 1991

PRESERVATION SERVICES

Planning Division (11-2-240a)

IHPA REVIEW

H/A \_\_\_\_\_  
AC \_\_\_\_\_  
AR \_\_\_\_\_  
File \_\_\_\_\_

Mr. Theodore Hild  
Deputy State Historic  
Preservation Officer  
Illinois Historic  
Preservation Agency  
Old State Capitol  
Springfield, Illinois 62704

Dear Mr. Hild:

The Rock Island District of the U.S. Army Corps of Engineers (Corps) is currently finalizing plans for the major rehabilitation of Lock and Dam 13 of the 9-Foot Navigation Project on the Mississippi River. Lock and Dam 13 is located at river mile 522.6, near Fulton, Illinois.

The enclosed correspondence from your agency documents that the Illinois State Historic Preservation Office (SHPO) had no objection to the rehabilitation and agreed that the project is in compliance with the Upper Mississippi River Locks and Dams 2-22 Programmatic Memorandum of Agreement.

On June 13, 1991, Mr. William J. Callahan of your Agency was notified that the proposed dredged material placement adjacent to Lock 13 would not contain all the material without affecting portions of a bottomland wetland forest (see enclosed Conversation Record and Plate EA-3). Mr. Callahan was informed that the Corps proposes two more dredged material placements along the nearby Corps levee which will be used for parking development (see Plate EA-4). This levee is a modern construction and the dredged material placements will not disturb any original soil, nor affect any historic properties eligible for, or listed on, the National Register of Historic Places.

-2-


We request your concurrence with the two proposed dredged material placements adjacent to the levee. If you have questions or request additional information, please call Mr. Ron Deiss of our Environmental Analysis Branch at 309/788-6361, Ext. 6185, or you may write to the following address:

District Engineer  
U.S. Army Engineer District, Rock Island  
ATTN: Planning Division  
Clock Tower Building - P.O. Box 2004  
Rock Island, Illinois 61204-2004

Sincerely,

  
Dudley M. Hanson, P.E.  
Chief, Planning Division

Enclosures

**CONCUR**  
  
By \_\_\_\_\_  
Date 8/20/91

**APPENDIX B**

**CLEAN WATER ACT  
SECTION 404(b)(1) EVALUATION**



REPLY TO  
ATTENTION OF

CENCR-PD-E

DEPARTMENT OF THE ARMY  
ROCK ISLAND DISTRICT, CORPS OF ENGINEERS  
CLOCK TOWER BUILDING - P.O. BOX 2004  
ROCK ISLAND, ILLINOIS 61204-2004

LOCK AND DAM 13 MAJOR REHABILITATION

WHITESIDE COUNTY, ILLINOIS  
CLINTON COUNTY, IOWA

APPENDIX B  
CLEAN WATER ACT  
SECTION 404(b)(1) EVALUATION

JANUARY 1993

**LOCK AND DAM 13 MAJOR REHABILITATION**

**WHITESIDE COUNTY, ILLINOIS  
CLINTON COUNTY, IOWA**

**APPENDIX B  
CLEAN WATER ACT  
SECTION 404(b)(1) EVALUATION**

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**LOCK AND DAM 13 MAJOR REHABILITATION**

**WHITESIDE COUNTY, ILLINOIS  
CLINTON COUNTY, IOWA**

**APPENDIX B  
CLEAN WATER ACT  
SECTION 404(b)(1) EVALUATION**

**SECTION 1 - PROJECT DESCRIPTION**

**LOCATION**

Lock and Dam 13 is part of the Upper Mississippi River System located at river mile 522.5, just north of Fulton Illinois (plate EA-1). The facility consists of one 600-foot main lock separated from the dam by an emergency/auxiliary set of lock miter gates.

**GENERAL DESCRIPTION**

For Lock and Dam 13, the following activities require assessment in this Section 404(b)(1) Evaluation:

- a. Dredging silt from the upstream and downstream side of the emergency/auxiliary miter gates.
- b. Dredging sand as necessary from the tailwater of the dam to permit installation of additional scour protection, in a strip roughly 100 feet wide, from the riverside lock wall to the end of the gated portion of the dam.
- c. Dredging sand from the pool side of the dam, in a strip roughly 58 feet wide, from the riverside lock wall to the end of the gated portion of the dam. Some areas of this alignment will not require material removal. At Dam 13, some dredging is anticipated across most of the dam. Scour holes will be armored, instead of being filled to level grade.

Maintenance activities to commence following completion of items b. and c. will consist of placing rock bedding and capstone for scour protection above and below Dam 13.

## AUTHORITY AND PURPOSE

The project is to be completed under the authority of the River and Harbor Act of July 3, 1930, which authorized the Upper Mississippi River Nine-Foot Channel Navigation project. Operation and maintenance of Lock and Dam 13 are included in that authorization.

The purpose of this action is major rehabilitation of the existing facility, which is a component of the Upper Mississippi River Nine-Foot Channel Navigation project. Lock and Dam 13 is a unit of the Inland Waterway Navigation System of the Upper Mississippi River Basin.

## GENERAL DESCRIPTION OF DREDGED AND FILL MATERIAL

Total material removed will be approximately 15,000 cubic yards (CY) at Lock and Dam 13 (table B-2). At Lock 13, approximately 5,000 CY of fine sediment upstream and 2,500 CY downstream of the auxiliary gates, and 7,500 CY of sandy material from the pool and tailwater area of the dam will be removed and placed in spoil sites identified below under "Description of Proposed Discharge Sites."

The top of the 1,830-foot overflow and transition sections will be covered with a linked reinforced concrete slab. Voids in the existing slab concrete surfacing will be grouted. The quantity to be placed on the overflow section is approximately 200 CY of grout and 600 CY of reinforced concrete.

Material to be used for scour protection at Dam 13 will consist of derrick stone on rock fill. Rock typically used is limestone and, as such, may be considered physically stable and chemically noncontaminating. Stone gradations and quantity estimates are shown below in tables B-1 and B-2, respectively.

TABLE B-1

### Scour Protection Stone Gradations

<u>Percent Smaller by Weight</u>	<u>Limits of Weights of Stone (lbs.)</u>	
	<u>Rock Fill</u>	<u>Riprap</u>
100	400-200	2,000-950
50	180-90	830-460
15	50-25	400-200

**TABLE B-2**

**Quantity Estimates (CY)  
Lock and Dam 13**

<u>Material</u> <u>Approx. Total</u>	<u>Upstream</u>	<u>Downstream</u>
Rock fill 32,000	12,000	20,000
Derrick stone 21,000	12,000	9,000
Excavated sand 7,500	2,500	5,000
Fine sediments 7,500	7,500	

Below Dam 13, the rock fill will be 2.5 feet thick and will extend 75 feet beyond the existing rock protection. Above Dam 13, the rock fill will extend 58 feet beyond the existing rock protection. The derrick stone will be placed on the rock fill at a thickness of 3.5 feet for a distance of 20 feet beyond the existing rock protection. The derrick stone above the dam will be placed on the rock fill at a thickness of 3.5 feet for a distance of 38 feet beyond the existing rock protection (plate EA-5).

**DESCRIPTION OF PROPOSED DISCHARGE SITES**

Scour protection at Dam 13 will be placed on the packed sand substrata immediately upstream and downstream of the dam. Portions of these substrata will be excavated prior to discharge of rock fill and capstone.

Due to the location, water velocity generally reduces the bottom-dwelling, or benthic community to the burrowing invertebrates. No mussel bed community is anticipated to exist under conditions typically found at or immediate to the stilling basin of a dam of this type.

Discharge of rock fill and capstone, for scour protection, will take place during low-flow periods typically encountered during the summer months. This work will require alteration of the dam regulation schedule to allow plant and equipment to work in the dam tailwater areas. Placement of rock fill and capstone may take up to 4 months, depending on river stages. Dredging with a mechanical dredge, transport, and placement of fine material from the auxiliary lock may take up to 6 weeks, depending on conditions encountered during the operation. It is currently planned to dredge during the summer months of 1994 and 1995.

The site currently proposed for discharge, or placement of excavated silty materials, is behind the lower guidewall (plate EA-3). Currently, this area is used as an equipment storage area and river access road to work boats/barges. The site will be planted with grass and trees once disposal is completed.

The two sites proposed for discharge or placement of excavated sandy materials are along the east-west dike, between the lock and dam entry road and Johnson Creek (plate EA-4). The two parking areas also will be designated as secondary disposal sites for the silt material from the emergency lock, if needed. These sites will be groomed and maintained as parking lots for fishermen fishing along either side of the dike. Currently, the fishermen are parking on the shoulder of the road, creating a safety and traffic problem.

#### DESCRIPTION OF PLACEMENT METHOD

Placement of material for scour protection typically involves the use of deck-mounted cranes and/or derricks, deck barges, endloaders, quarter boats, and tender craft. Materials are dumped to alignment and spread to profile. Large grade stone (i.e., derrick stone) is placed by crane or derrick. Excavated sandy materials from the upstream and downstream portions of the dam will be loaded on trucks for transport to the disposal sites. Placement of fine material from the auxiliary lock area will primarily involve the use of a deck-mounted crane and clamshell bucket. This material will be loaded on deck barges for transfer to the placement site. Following stockpiling and drying, dredged material would be graded to elevations suitable for landscaping or other desired purposes. Placement of all materials is planned for non-aquatic sites.

## SECTION 2 - FACTUAL DETERMINATIONS

### PHYSICAL SUBSTRATE DETERMINATIONS

Lock and Dam 13 was constructed on Mississippi riverbed cross sections consisting primarily of sand, gravel, and finer alluvial material. The lock and dam was built on wooden piles driven into the riverbed.

Sediments accumulated over the period of operation of Lock and Dam 13 are primarily silts and clays in the emergency lock area, where slack water has allowed finer suspended material in the tailwaters of Dam 13 to vary from location to location across the profile. From the auxiliary lock riverside wall to the storage yard, little deposition typically occurs due to the higher velocities resulting from the use of the gates for pool level control. Sediments that accrete here would typically be coarse sand and larger material. During low-flow periods, the overflow sections of the dam create slack water areas where deposition of sand and finer material occurs. However, due to annual flushing during high water periods, percentages of fine material present at any time in this reach would be variable. Fine material percentages generally increase with distance away from the dam.

Deposition of rock fill and derrick stone across the upper and lower dam/riverbed cross sections is intended to stabilize bottom components and reduce undercutting of existing scour protection.

Placement of excavated/dredged material from Lock and Dam 13 is planned to occur in the summer months of 1994 and 1995. Material will be placed behind the lower guidewall and along the road dike and will be groomed as described above under "Description of Proposed Discharge Sites."

The placement of up to 7,500 CY of predominantly fine sediments from the auxiliary lock area is of primary concern. These sediments have been analyzed for various chemical parameters, with results of analyses being shown on table B-3. Physical and chemical composition of this material was considered when selecting a placement site.

Grain size analysis results are given in table B-4. Sediment samples collected at the upstream sites consisted primarily of silt and/or clay. At LD13-U1 and LD13-U2, more than 85 percent of the material passed through a #230 sieve. However, sediments from the downstream chamber sites are much coarser. Only 30 and 16 percent of the material passed through a #230 sieve at sites LD13-D1 and LD13-D2, respectively.

TABLE B-3

## L/D 13 Elutriate Analysis Results in mg/l

Parameter	Site				
	LD13-U1	LD13-U1**	LD13-U2	LD13-D1	LD13-D2
Arsenic	<0.0045	<0.0045	<0.0045	<0.0045	0.0046
Cadmium	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chromium (+6)	<0.010	<0.010	<0.010	<0.010	<0.010
Copper	<0.025	<0.025	<0.025	0.050*	<0.025
Lead	0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Mercury	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel	<0.040	<0.040	<0.040	<0.040	<0.040
Selenium	<0.0045	<0.0045	<0.0045	<0.0045	<0.0045
Zinc	0.063	0.054	0.050	0.084	0.057
Ammonia Nitrogen	16	15*	1/*	12*	5.8
Oil and Grease	<6.5	<6.7	<6.8	<7.0	<6.9
Total Suspended Solid	<7.5	<7.5	<7.5	<7.5	<3.8
Total Volatile Solids	84	87	41	90	79
Total Organic Carbon	13	17	14	55	55

## L/D 13 Ambient Water Analysis Results in mg/l

Parameter	Site		State Standard***
	LD13-U1	LD13-D2	
Arsenic	<0.0045	<0.0045	0.360
Cadmium	<0.0050	<0.0050	0.015
Chromium (+6)	<0.010	<0.010	0.016
Copper	.031*	<0.025	0.026
Lead	0.0030	0.0072	0.137
Mercury	<0.00020	<0.00020	0.0005
Nickel	<0.040	<0.040	1.0
Selenium	<0.0045	<0.0045	1.0
Zinc	<0.020	0.021	1.0
Ammonia Nitrogen	0.16	0.16	****
Oil and Grease	<3.5	<7.0	-
Total Suspended Solid	70	110	-
Total Volatile Solids	93	53	-
Total Organic Carbon	13	13	-

\* Exceeds Illinois General Use Water Quality Standards

\*\* Duplicate sample collected for quality control purposes

\*\*\* Illinois General Use Water Quality Standard (cadmium, copper & lead are acute standards calculated by assuming a hardness of 150 mg/l)

\*\*\*\* Ammonia nitrogen shall never exceed 15 mg/l. If ammonia nitrogen is less than 15 mg/l and greater than or equal to 1.5 mg/l, then unionized ammonia nitrogen shall not exceed 0.04 mg/l

**TABLE B-4**

**Grain Size Analysis of Sediment Samples  
Summary of Testing  
Percent Finer by Weight**

U.S. Standard  
Sieve Size  
or Number

<u>Sample No.</u>	(DUP) <u>LD13-U1</u>	<u>LD13-U1</u>	<u>LD13-U2</u>	<u>LD13-D1</u>	<u>LD13-D2</u>
3/4"					100.0
1/2"					99.3
3/8"				100.0	99.3
# 4				99.4	99.0
# 8				98.3	98.3
# 16	100.0	100.0	100.0	95.3	94.4
# 30	99.5	99.7	99.7	87.3	86.0
# 50	98.5	98.5	97.2	57.8	55.5
# 70	96.9	95.5	94.3	44.4	37.0
# 100	94.4	94.3	90.4	35.4	23.0
# 200	90.3	90.1	85.7	30.8	16.5
# 230	<u>89.9</u>	<u>88.9</u>	<u>85.1</u>	<u>30.6</u>	<u>16.2</u>

Classification:	(a)	(a)	(b)	(c)	(c)
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**Notes:**

1. Visual classification of soils as stated below is in accordance with "The Unified Soils Classification System (USCS)"

- (a) CH Gray fat clay trace organics
- (b) CH Gray sandy fat clay trace organics
- (c) SC Gray clayey sand trace shell, organics

2. Laboratory testing was performed in accordance with EM 1110-2-1906 dated 30 Nov 70, revised 1 May 80 and 20 Aug 86. All samples were oven dried at 110 degrees centigrade. Sample designated (Dup) is a duplicate sample.

3. Sample date: 18 April 1991



## WATER CIRCULATION, FLUCTUATION, AND SALINITY DETERMINATIONS

### WATER

Water and sediment samples were collected on April 18, 1991. These samples were taken in the auxiliary lock area and were analyzed for ambient water and elutriate parameters. Results were compared to Illinois water quality standards. Elutriate and ambient water test results are shown in table B-3.

Samples were collected immediately upstream and downstream of the auxiliary lock gate (plate B-1). Each sediment sample was a composite consisting of three subsamples (collected from the center of the lock chamber and along the sides of each lock wall). Sediment samples were collected with a plastic-lined, 3-foot-long core sampler. A duplicate sample for quality control purposes was collected at site LD13-U1. Water samples were collected at the surface at LD13-U1 and LD13-D2. The sediment subsamples were composited, placed in glass containers, and placed on ice. The elutriate test consisted of mixing one part sediment with four parts water. The mixture was shaken for 30 minutes and then allowed to settle for 30 minutes. The supernatant was then drawn off and analyzed. Samples were analyzed for several metals, ammonia nitrogen, oil and grease, total suspended solids, and total organic carbon.

All ambient water metal concentrations were less than their respective detection limit, except for copper and lead at LD13-U1, and lead and zinc at LD13-D2. The copper concentration at LD13-U1 exceeded the State standard. No unusual concentrations were observed for the remaining ambient water parameters.

The elutriate test is used to simulate return flow conditions that would occur during dredged material placement.

Results from the elutriate analyses indicate that ammonia nitrogen (including its un-ionized form) would be the parameter of main concern if the sediment which has accumulated in the auxiliary locks were hydraulically dredged. At all sites, ammonia nitrogen levels exceeded the State standard but were in the range similar to that observed in sediments collected from other Mississippi River auxiliary lock chambers. The elutriate test results indicate that only zinc and copper were found in detectable levels, and only copper exceeded the State standard (at site LD13-D1). All other concentrations were below the detectable limit. Proposed mechanical dredging may serve to reduce effects by removing material quantities in bulk, rather than slurry form. However, turbidity levels are typically higher at the work site with mechanical dredging. If dredging were to occur during the fall or spring when water temperatures and pH values are lower, un-ionized ammonia nitrogen concentrations would be lower; therefore, there would be fewer violations of this standard. At this time, it is proposed to dredge during the summer months.

Sediment sampling and analyses centered around material anticipated to be primarily silt to clay-size particles. Typically, analysis of sand sediments, such as found immediately above and below Lock and Dam 13, reveals little evidence of pollutants due to the limited surface area of sand-size particles and the lack of strong chemical bonding of contaminants to sand grains. No pollutant analysis was performed on sandy material at Lock and Dam 13.

Any contaminants in sandy materials removed from the pool or tailwater would be those typically contained or transported by normal fluvial processes. Placement of sandy material excavated from the dam area would not be anticipated to alter water chemistry in the water column, as return water reaches the Mississippi River.

Clarity and turbidity of the river vary with seasonal flow. The placement site and methods have been selected to minimize impacts to clarity, color, odor, taste, dissolved gas levels, nutrients, and biochemical oxygen demand in the riverine environment. Discharge of rock will stabilize finer substrate materials; terrestrial placement of fine silt and clay will minimize water quality impacts. Any return water reaching the bankline is anticipated to have only a localized, short-term effect. Bank material will be protected as necessary for erosion control during discharge flow.

Non-riverine originated components such as rock fill, capstone, concrete, and steel which may be placed temporarily or permanently during construction will be physically stable and chemically noncontaminating.

#### CURRENT PATTERNS AND CIRCULATION

Placement of rock fill and capstone for scour protection is not anticipated to negatively affect current patterns, velocity, stratification, and hydrologic regime in the river system. However, scour protection is anticipated to reduce local scouring caused by through-dam current patterns.

Terrestrial discharge of material excavated from the emergency lock should have no effect on hydraulic or hydrologic conditions in the project area.

#### NORMAL WATER LEVEL FLUCTUATIONS

No effects on normal seasonal river stages are anticipated by the proposed actions.

## **SALINITY GRADIENTS**

The proposed actions take place in and around an inland freshwater stream system. Therefore, no consideration of salinity gradients is warranted for these actions.

## **ACTIONS TAKEN TO MINIMIZE IMPACTS**

The use of chemically stable materials, physical stabilization of materials by design, and terrestrial placement of fine, silty material are actions intended to reduce impacts to the riverine system.

Proposed mechanical dredging of fine material is intended to reduce contaminant and sediment resuspension at the placement site, which typically occurs with hydraulic dredging.

## **SUSPENDED PARTICULATE/TURBIDITY DETERMINATIONS**

The discharge of rock for scour protection is anticipated to have only a minor, temporary effect as the material is placed and spread to design elevation.

Mechanical dredging in the auxiliary lock areas will result in locally increased turbidity. Analysis of turbidity at Lock and Dam 20 during cleanout of that auxiliary lock indicated elevations to 145 NTU against background levels of 79 to 84 NTU. All levels observed during dredging at Lock and Dam 20 are similar to naturally occurring turbidity levels during periods of high flow. Effects on the water column of the river system regarding light penetration, dissolved oxygen, toxic metals and organics, pathogens, and aesthetics are anticipated to be minimal and localized for a nominal distance downstream during the term of project construction.

Some potentially toxic materials have been identified in materials to be dredged from the river system. Concentrations of these materials in return water which could potentially exceed water quality standards for elutriate are anticipated to be minimized through the dredge method for fine materials (mechanical), and the placement site selection for fine materials (terrestrial) planned for this project.

## **DREDGING AND PLACEMENT**

Effects on biota, including primary producers (i.e., zoo and phytoplankton, suspension/filter feeders, and sight feeders) are anticipated to be temporary and localized. Because the duration of increased turbidity

levels is anticipated to be minimal, localized, and temporary, impacts to the aquatic community are anticipated to be negligible. The project component which will produce a habitat alteration, scour protection, is anticipated to provide long-term benefit by stabilizing finer sediments.

Impacts are anticipated to be minimized by placement site selections, dredging methodology, and the use of chemically noncontaminating and physically stable materials for project construction.

#### CONTAMINANT DETERMINATIONS

No dredged material contaminants have been identified which require special handling or treatment beyond that currently proposed for the project.

Contaminants identified from elutriate analysis are generally part of the modern riverine system and are commonly suspended, transported, and deposited through normal fluvial processes in the Mississippi River.

#### AQUATIC ECOSYSTEM AND ORGANISM DETERMINATIONS

Because the likelihood of contamination by pollutants is generally low for projects involving rock placement and terrestrial disposal, impacts to the aquatic ecosystem are anticipated to be negligible.

Effects on plankton are anticipated to be minimal. Effects on benthos will be limited to elimination of those organisms currently inhabiting the immediate scour protection site. The placement of rock fill for scour protection should provide interstitial spaces for invertebrate population production and limited vertebrate spawning potential. Effects on nekton will be limited to displacement and temporary disruption of foraging patterns. Because the proposed activities are generally held to low-flow (hence, non-spawning seasons), impacts to spawning species should be negligible. Impacts regarding various behavioral patterns during winter high stress periods would be restricted to the project site due to ice coverage and resultant weather-related construction restrictions. Effects on the aquatic food web are expected to be negligible. Effects on special aquatic sites should be negligible in the project area; no sanctuaries or refuges will be affected by the project action. No mudflats will be affected by the project actions. No vegetated shallows, coral reefs, or riffle and pool complexes will be affected by the proposed actions.

Threatened and endangered species use of, or existence in, the project area is discussed in the environmental assessment. No impacts or effects to endangered species are anticipated.

Other wildlife, such as muskrat and beaver, which would move through and around the project areas should be affected only to the extent of travel

disruption. No food chain or critical habitat requirements will be affected by the proposed actions.

#### PROPOSED PLACEMENT SITE DETERMINATIONS

The mixing zone for discharge of rock fill will be the water column, approximately 20 feet deep in the pool and tailwater areas immediately adjacent to the dam. Dam gates will be closed sequentially to allow floating plant access to the construction site. This is anticipated to reduce current velocity and turbulence in order to facilitate fill placement. Depending on river conditions, this discharge may take several weeks to complete. The lack of fine particulates typically contained in rock fill indicates negligible chemical or turbidity effects resulting from this action.

Concerning the one site where copper exceeded the State standard, the use of a confined disposal facility that allowed for a settling period greater than 30 minutes would likely result in a return water copper concentration below the State standard. Water quality standards for Illinois are represented on table B-3.

Test results indicate that ammonia and unionized ammonia nitrogen are the most likely water quality standards which may be violated by the project activity. However, the proposed dredging and placement methods for material containing all contaminants are expected to minimize contaminant reintroduction to the water column. Further, past experience indicates that high ammonia nitrogen concentrations are quickly attenuated given a relatively small mixing zone.

The proposed project should have no effect on municipal or private water supplies, recreational or commercial fisheries, or water-related recreation. Aesthetics are generally negatively affected by any type of construction activity; however, for this project, no permanent negative effects are anticipated due to the nature of the project (maintenance and repair) and the location of placement sites. The placement site behind the lower guidewall will be planted with grass and trees and later will be furnished with picnic tables for public use. The remaining placement sites will ultimately function as parking areas for recreational fishermen that use the backwater pool area. Hence, benefits that are anticipated as public enjoyment through eagle watching, fishing, and other recreational opportunities will be enhanced.

#### DETERMINATION OF CUMULATIVE EFFECTS ON THE AQUATIC ECOSYSTEM

Due to the inhospitable benthic environment above and below Dam 13, the placement of rock fill and capstone in this area is expected to stabilize part of the local substrate. This stabilization effort should provide

crevices and interstices in which certain aquatic organisms can feed and reproduce. In terms of habitat diversity, therefore, scour protection will have a net positive effect on the aquatic ecosystem.

Terrestrial placement of fine material from the emergency lock area and sand material from scour protection excavation is anticipated to produce negligible effects on the aquatic ecosystem. Removing accreted sediments from the aquatic ecosystem at the subject facility may be considered to be beneficial.

#### DETERMINATION OF SECONDARY EFFECTS ON THE AQUATIC ECOSYSTEM

No secondary effects on the aquatic ecosystem are anticipated. This determination is subject to reevaluation, if warranted by Federal, State, or local agency comment, as well as input from the general public.


**SECTION 3 - FINDINGS OF COMPLIANCE OR NONCOMPLIANCE  
WITH THE RESTRICTIONS ON DISCHARGE**

1. No significant adaptations of the 404(b)(1) guidelines were made relative to this evaluation.
2. Evaluation of Practicable Alternatives. Refer to EA Sections III and VII.
  - a. No Federal Action. This alternative was not selected because:
    - (1) Sediment removal from each emergency/auxiliary lock is necessary for rehabilitation activities.
    - (2) Excavation for scour protection is necessary for additional stabilization of the dam structure substrate.
  - b. Proposed Actions. The proposed actions are considered environmentally and economically acceptable as planned. Placement sites and dredging methodology have been selected to reduce water quality impacts as well as impacts to the riverine system. Placement sites are primarily non-aquatic in nature. Materials discharged will be chemically and physically stable.
3. Permits, certification, and/or waiver of certification under Section 401 of the Clean Water Act will be obtained before construction begins. The projects will be in compliance with water quality requirements of the States of Iowa and Illinois.
4. The projects are not anticipated to introduce significant quantities of toxic substances into nearby waters or result in appreciable increases in existing levels of toxic materials.
5. No significant impact to Federal or State-listed endangered species will result from the proposed actions.
6. The project is situated along an inland freshwater stream system. No marine sanctuaries are involved or would be affected by the proposed actions.
7. No municipal water supplies will be affected by the proposed actions, and no degradation of waters of the United States is anticipated to result from the proposed actions.
8. The materials used for construction will be chemically and physically stable and noncontaminating. Removal of accreted sediments from the aquatic ecosystem at the subject facility may be considered to be beneficial. Benefits will accrue, since the placement sites will ultimately enhance opportunities for river related recreational activities.

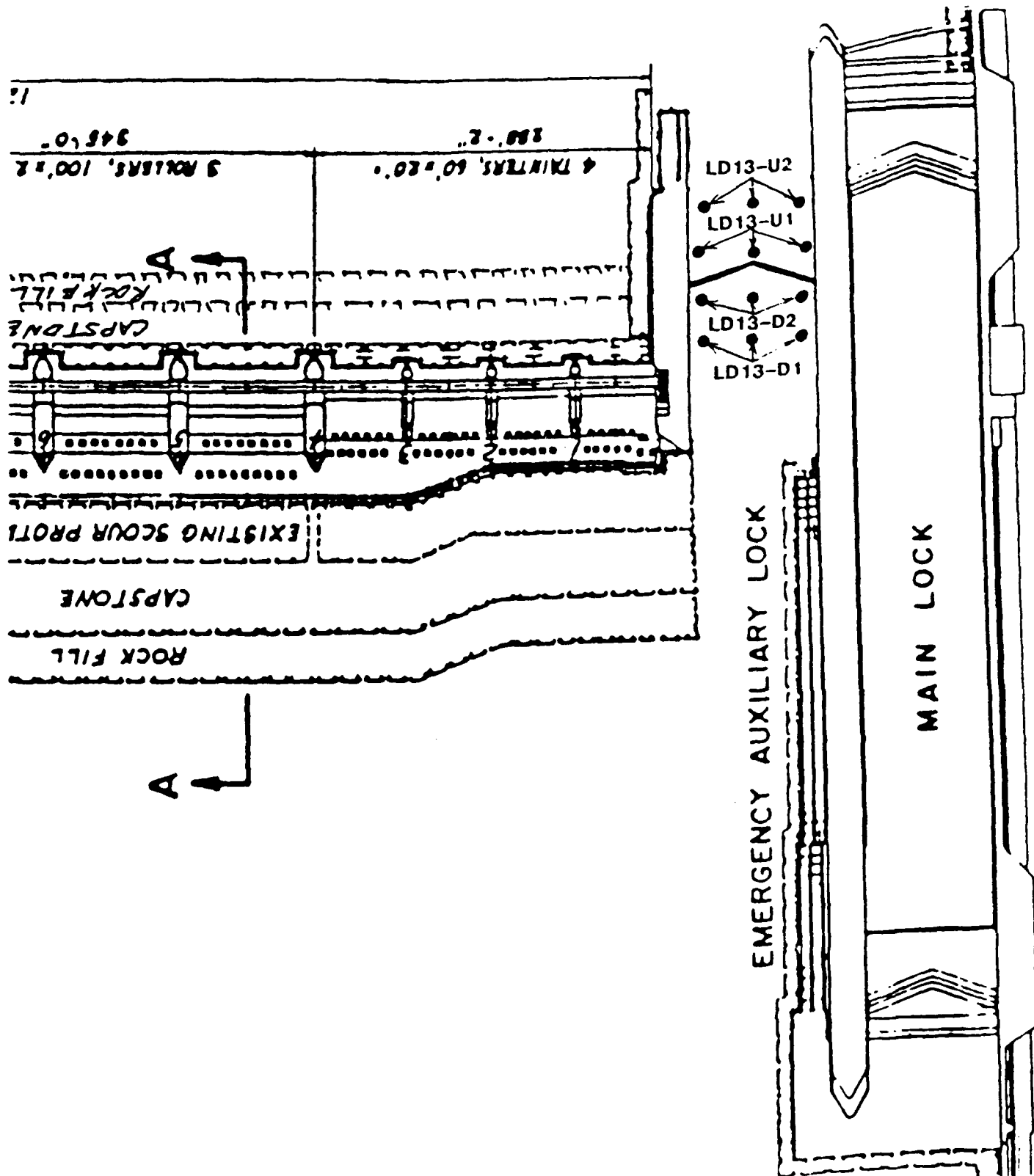
9. No other practical alternatives have been identified. The proposed actions are in compliance with Section 404(b)(1) of the Clean Water Act, as amended. The proposed actions will not significantly impact water quality and will improve the integrity of an authorized navigation system.

8 Apr 83

Date

  
Albert J. Kraus  
Colonel, U.S. Army  
District Engineer





Lock and Dam 13 Water and Sediment  
Sampling Locations

**APPENDIX C**  
**PROGRAMMATIC MEMORANDUM OF AGREEMENT**

# **Advisory Council On Historic Preservation**

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The Old Post Office Building  
1100 Pennsylvania Avenue, NW, #809  
Washington, DC 20004

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## **PROGRAMMATIC AGREEMENT LOCKS AND DAMS 3 THROUGH 22, UPPER MISSISSIPPI RIVER**

WHEREAS, the U.S. Army Corps of Engineers, Rock Island and St. Paul Districts, (Corps) proposes to administer a program to rehabilitate the locks and dams under their jurisdiction on the Mississippi River (locks and dams 3 through 22); and,

WHEREAS, the Corps has determined that the program may have an effect upon properties included in or eligible for inclusion in the National Register of Historic Places and has consulted with the Advisory Council on Historic Preservation (Council) and the State Historic Preservation Officers (SHPO) of Missouri, Illinois, Iowa, Wisconsin, and Minnesota pursuant to Section 800.13 of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act (16 U.S.C 470f),

NOW THEREFORE Corps, the Council, and the SHPOs agree that the program shall be administered in accordance with the following stipulations to satisfy the agency's Section 106 responsibilities for all individual undertakings of the program.

### **Stipulations**

The Corps will ensure that the following measures are carried out.

1. In implementing this Agreement and in carrying out all work on the locks and dams, the Corps will seek to ensure that the overall historic character and appearance of the lock and dam system is preserved and restored.
2. Actions which do not affect potentially significant features of the locks and dams, as identified in table 12 (attached) of Major Rehabilitation Program, Mississippi River Locks and Dams 11 through 22 (Rock Island District) and Major Rehabilitation Program, Mississippi River Locks and Dams 3 through 10 (St. Paul District) will be carried out as proposed.

3. Actions which may affect significant features, as identified in table 12, will be carried out as follows:

A. Where the Corps determines that work will be in accordance with the "Secretary of the Interior's Standards for Rehabilitation," the actions will be carried out. The Corps will maintain records of all work performed, which shall be open to inspection by the relevant SHPO, upon request, to verify that the "Standards" are being interpreted in a manner consistent with the policies of the SHPO.

B. Where the Corps determines that work will not be in accordance with the "Secretary of the Interior's Standards for Rehabilitation", or where any guidewall extension; addition of lock structure; or removal, relocation or major alteration of control stations are proposed, the Corps will consult with the relevant SHPO to determine an acceptable treatment. Where the Corps and the SHPO reach agreement, the Corps may proceed in accordance with the agreed upon treatment. Where the Corps and the SHPO cannot reach agreement, the Corps will notify the Council to obtain help in resolving the disagreement and may request the comments of the Council in accordance with 36 CFR Section 800.5(e)(6).

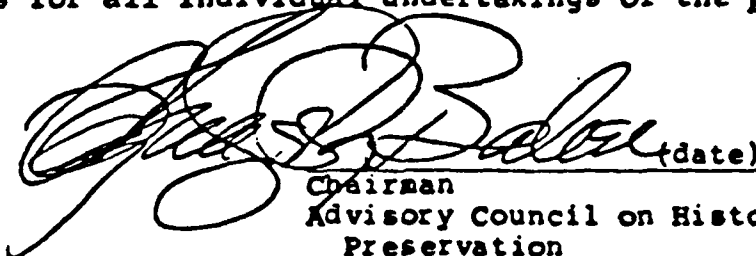
4. The Corps shall ensure that a record is made of locks and dams 3 through 22. The Corps shall request the National Park Service (Historic American Engineering Record) to determine appropriate documentation for the locks and dams. Prior to conducting any rehabilitation, the Corps shall ensure that documentation specified by the National Park Service is completed. Copies of the documentation of the locks and dams within each State's jurisdiction shall be provided to the relevant SHPO. Copies of the documentation of the locks and dams within each Corps district shall be maintained in each district office of the Corps.

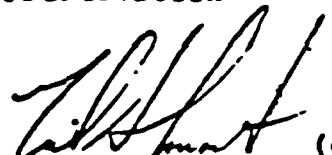
5. Rehabilitation work anticipated, but not yet planned, including work at locks and dams 11, 14, and 19 (only the c. 1913 portion or lock and dam complex 19), will be reviewed by the Corps, the relevant SHPO, and the Council at the time planning begins. If the Corps, the SHPO, and the Council agree, such work may be carried out in accordance with the terms of this Agreement.

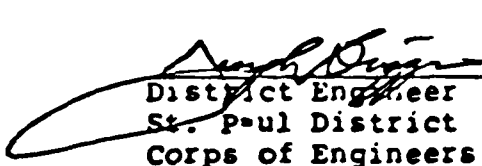
6. Nothing in this Agreement is intended to prevent the Corps, the SHPOs, or the Council from consulting more frequently or informally concerning any questions that may arise or on the progress of any projects falling under this Agreement.

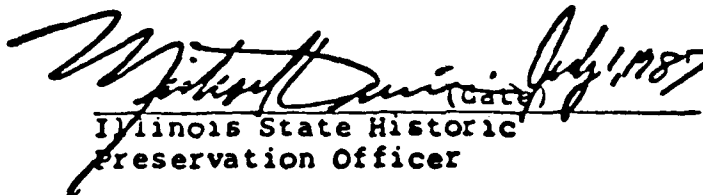
7. Any of the signatories to this Agreement may request a reconsiderations of its terms or revoke the Agreement upon written notice to the other signatories. In the event the Agreement is revoked or for other reasons is not implemented, the Corps will follow the procedures set out in 36 CFR Part 800 to obtain the Council's comments on individual undertakings of the program.

Execution of this Programmatic Agreement and carrying out its terms evidences that the Corps has satisfied its Section 106 responsibilities for all individual undertakings of the program.

 (date) 30 May '87  
Chairman  
Advisory Council on Historic  
Preservation


 (date) 24 June 1987  
District Engineer  
Rock Island District  
Corps of Engineers

 (date) 12 June 1987  
District Engineer  
St. Paul District  
Corps of Engineers

 (date) July 1, 1987  
Illinois State Historic  
Preservation Officer

 (date) 7/24/87  
Iowa State Historic  
Preservation Officer

 (date) 8/5/87  
Minnesota State Historic  
Preservation Officer

 (date) Aug. 21, 1957  
Missouri State Historic  
Preservation Officer

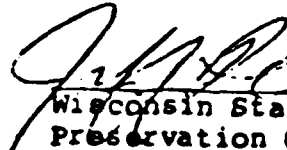
 (date) Aug. 31, 1957  
Wisconsin State Historic  
Preservation Officer

TABLE 12 (Cont'd)

Action	Affect to Significant Fea.	Affect to Potential NHP Element	Adverse Effect Criteria	No Adverse Effects	Compliance w/Sec'y Interior's Standards	Beneficial Effects
Roller Gates	Yes	Yes	None apply	All actions	Cleaning, painting and wiring plans conform	Routine maintenance
Tainter Gates	Yes	Yes	None apply	All actions	Cleaning, painting, wiring, chain work conform	Routine maintenance
Service Bridge	No	No	None apply	No Effect	Full compliance	Routine maintenance
Piezometers	No	No	None apply	No Effect	Full compliance	Routine maintenance
Emergency Bulkheads	No	No	None apply	No Effect	Full compliance	Routine maintenance
Scour Protection	No	No	None apply	No Effect	Full compliance	Routine maintenance
Storage Yard Tracks	No	No	None apply	No Effect	Full compliance	Routine maintenance
Overflow Section	No	No	None apply	No Effect	Full compliance	Routine maintenance
Storage Yard Embankment	No	No	None apply	No Effect	Full compliance	Routine maintenance
Non-Overflow Section	No	No	None apply	No Effect	Full compliance	Routine maintenance
Abutments	No	No	None apply	No Effect	Full compliance	Routine maintenance
Davenport Seawall/Storm Sewer	No	No	None apply	No Effect	Full compliance	Routine maintenance
Powerhouse Generator	Yes	Yes	Criteria 1 could apply for roofs and windows	All actions	Normal wear repairs; roofs and windows could be designed to comply and preserve appearance, profile, and configuration	Routine maintenance
Maintenance Storage Shed	No	No	None apply	No Effect	Normal wear repairs; roofs and windows could be designed to comply and preserve appearance, profile, and configuration including doors	Routine maintenance
Lock Control Stand Enclosures	Yes	Yes	Criteria 1 and 3 for new enclosures could apply	All actions	New enclosures can be designed to blend in with overall concrete matrix and be an improvement over the existing metal ones	Routine maintenance

TABLE 12

Impact Summary for Major Rehabilitation Actions  
(see also table 11)

Action	Affect to Significant Fea.	Affect to Potential NRP Element	Adverse Effect Criteria	No Adverse Effects	Compliance w/Sec'y Interior's Standards	Beneficial Effects
Lockwalls, Guidewalls Walking Surfaces	Yes	Yes	Potentially 1 and 3 for guidewall extensions	All actions except guidewall extensions	Concrete and armor replacement will essentially match existing conditions; guidewall extension will match those already in place at some locations and will appear clearly different from original lock walls	Except guidewall extension, required upkeep of structures
Main Lock Miter Gates	Yes	Yes	None apply	All actions	Cleaning and painting essentially as existing	Required maintenance
Lock Dewatering System	No	No	None apply	No effect	Straight forward inspection and repair as existing/original	Required maintenance
Emergency/Auxiliary Lock Miter Gates	No	No	None apply	No effect	Straight forward inspection and repair as existing/original	Required maintenance
Main Lock Miter Gal. Machinery	Yes	Yes	None apply	New machinery on lockwall will be a minor intrusion	New machinery on top of lock wall will only be about 3 ft. high and visually unobtrusive; replacement parts for 50-yr.-old equipment cannot be obtained	Required maintenance and removal of machinery from flood susceptible pits
Lock Tainter Valve Machinery	Yes	Yes	None apply	New machinery on lockwall will be a minor intrusion	New machinery on top of lock wall will only be about 3 ft. high and visually unobtrusive; replacement parts for 50-yr.-old equipment cannot be obtained	Required maintenance and removal of machinery from flood susceptible pits
Main Lock Outlet	No	No	None apply	No effect	Not required	Required resolution of safety hazard
Lock Electrical Equipment	No	No	None apply	No effect	Not required; replacement parts unavailable for 50-yr.-old equipment; unobtrusive alteration	Required maintenance to improve operation
Dam Structure	Yes	one at L/D 15 and L/D 17	None apply	All actions	Repair, no overall appearance or function changes	Required maintenance



**APPENDIX D**  
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